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OM protein - protein search, using sw model

Run on: December 20, 2004, 08:54:47 ; Search time 67 Seconds

(without alignments)
160.625 Million cell updates/sec

Title: US-10-722-733-1_COPY_7_36

Sequence: 1 HAEGFTSDVSSYLEGQAKAEFIAMLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2002273 seqs, 358723299 residues

Total number of hits satisfying chosen parameters: 2002273

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: A_Geneseq_238sep04.*

1: geneseqp1980b.*
2: geneseqp1990s.*
3: geneseqp2000s.*
4: geneseqp2001s.*
5: geneseqp2002s.*
6: geneseqp2003as.*
7: geneseqp2003bs.*
8: geneseqp2004s.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	155	100.0	30	2 AAR45435	Aar45435 Insulinot
2	155	100.0	30	2 AAR63247	Aar63247 Insulinot
3	155	100.0	30	2 AAR79809	Aar79809 Glucagon
4	155	100.0	30	2 AAR80548	Aar80548 Human glu
5	155	100.0	30	2 AAR69063	Aar69063 Antidiabet
6	155	100.0	30	2 AAR98875	Aar98875 GLP1(7-35
7	155	100.0	30	2 AAR98856	Aar98856 Target pe
8	155	100.0	30	2 AAW16383	AAW16383 Glucagon-
9	155	100.0	30	2 AAW63182	AAW63182 GLP-1(7-3
10	155	100.0	30	2 AAW63288	AAW63288 Glucagon-
11	155	100.0	30	2 AAW50906	AAW50906 Glucagon-
12	155	100.0	30	2 AAW03719	AAW03719 Amino aci
13	155	100.0	30	2 AAY31503	Aay31503 Glucagon-
14	155	100.0	30	2 AAY34198	Aay34198 GLP-1 mut
15	155	100.0	30	2 AAY39773	Aay39773 Glucagon
16	155	100.0	30	2 AAY27374	Aay27374 Glucagon-
17	155	100.0	30	2 AAY42935	Aay42935 Glucagon-
18	155	100.0	30	2 AAY22166	Aay22166 GLP-1-1ik
19	155	100.0	30	2 ADI24916	ADI24916 GLP-1 (7-
20	155	100.0	30	3 AAR21340	Aar21340 Glucagon-
21	155	100.0	30	3 AAY78849	Aay78849 Glucagon-
22	155	100.0	30	3 AAB07313	Aab07313 Modified
23	155	100.0	30	3 AAB07294	Aab07294 Modified
24	155	100.0	30	3 AAB07314	Aab07314 Modified
25	155	100.0	30	3 AAY53280	Aay53280 Glucagon-

26	155	100.0	30	3 AAB11283	Aab11283 GLP-1 pep
27	155	100.0	30	3 AAB21108	Aab21108 Human glu
28	155	100.0	30	4 AAB36416	Aab36416 Glucagon-
29	155	100.0	30	4 AAB82336	Aab82336 Glucagon-
30	155	100.0	30	4 AAG63303	Aag63303 An insulin
31	155	100.0	30	4 AAB07375	Aab07375 Mammalian
32	155	100.0	30	4 AAB91170	Aab91170 Pancreat
33	155	100.0	30	4 AAB91181	Aab91181 Pancreat
34	155	100.0	30	4 AAB83291	Aab83291 GLP-1 pep
35	155	100.0	30	4 AAG70461	Aag70461 GLP-1, 7/
36	155	100.0	30	4 AAB85922	Aab85922 Glucagon-
37	155	100.0	30	4 AAB60249	Aab60249 Glucagon-
38	155	100.0	30	4 AAB36429	Aab36429 Glucagon-
39	155	100.0	30	4 AAB08260	Aab08260 Human glu
40	155	100.0	30	4 AAB60124	Aab60124 Human glu
41	155	100.0	30	5 AAO22094	Aao22094 Glucagon-
42	155	100.0	30	5 ABR43001	Abr43001 Insulinot
43	155	100.0	30	5 AAE14422	Aae14422 Mammalian
44	155	100.0	30	5 ABB80097	Abb80097 Glucagon
45	155	100.0	30	5 AABG71254	Abg71254 Human glu

ALIGNMENTS

RESULT 1	
ID AAR45435	standard; protein; 30 AA.
AC AAR45435;	
XX	
DT 25-MAR-2003 (revised)	
DT 27-JUN-1994 (first entry)	
XX	
DE Insulinotropic derivative.	
XX	
KW Insulinotropic; activity; enhancing insulin activity; treatment; Type II diabetes.	
XX	
OS Synthetic.	
XX	
PN WO9325579-A1.	
XX	
PD 23-DEC-1993.	
XX	
PF 14-APR-1993; 93WO-US003388.	
XX	
PR 15-JUN-1992; 92US-00899073.	
XX	
PA (Pfizer) PRIZER INC.	
XX	
PI Andrews GC, Daumy GO, Francoeur ML, Larson ER;	
XX	
PT WPI, 1994-007457/01.	
XX	
PT New derivs. of glucagon-like peptide 1 and insulinotropic - used for enhancing insulin action in a mammal, partic. by iontophoretic.	
XX	
PS Claim 3; Page 20; 32pp; English.	
XX	
CC The sequence is that of a derivative of insulinotropic which has insulinotropic activity and is useful for enhancing insulin action in a mammal, partic. for treating Type II diabetes (claimed). It is partic. suited for delivery to a mammal by iontophoresis. (Updated on 25-MAR-2003 to correct PN field.)	
XX	
SO Sequence 30 AA;	
Query Match	100.0%; Score 155; DB 2; Length 30;
Best Local Similarity	100.0%; Pred. No. 2.3e-15;
Matches	30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY	1 HAEGFTSDVSSYLEGQAKAEFIAMLVKGR 30

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DB 1 HAEGETTSVSSYLEGQAKKEFIAMLVKGR 30
RESUL 2
ID AAR63247 standard; peptide; 30 AA.
XX
XX AAR63247;
XX
XX 25-MAR-2003 (revised)
XX 02-MAY-1995 (first entry)
XX
XX Insulinotropin (GLP-1(7-36)) for use in treating NIDDM.
XX
XX Insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
XX non-insulin dependent diabetes mellitus; insulinotropin; truncated.
XX
XX Synthetic.
XX
XX EP619322-A2.
XX
XX 12-OCT-1994.
XX
XX 10-FEB-1994; 94EP-00300981.
XX
XX 07-APR-1993; 93US-00044133.
XX
XX (PFI) PFIZER INC.
XX (SCIO) SCIOS INC.
XX
XX Danley DE, Gelfand RA, Geoghegan KF, Yesook K, Lambert WJ;
XX Hong Q;
XX WPI; 1994-311774/39.
XX
XX Treatment of non-insulin dependent diabetes mellitus - using a glucagon-
XX like peptide 1 or deriv. with prolonged action for sustained glycaemic
XX control.
XX
XX Claim 2; Page 46; 70pp; English.
XX
XX This peptide is GLP-1(7-36) [GLP = glucagon-like peptide], a truncated
XX deriv. of GLP-1 and its deriv.s are useful in the treatment of Non
XX Insulin Dependent Diabetes Mellitus (NIDDM). During processing in the
XX pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino acid
XX peptide having amino acids 7-37 of GLP-1, alternatively referred to as
XX insulinotropin. GLP-1(7-37) has insulinotropic activity, ie. it is able
XX to stimulate, or cause to be stimulated, the synthesis of the hormone
XX insulin. Other derivs. of GLP-1 are shown in AAR63246-51. It has been
XX discovered that prolonged plasma elevations of GLP-1 and related
XX polypeptides, are necessary during the meal and beyond to achieve
XX sustained glycemic control in patients with NIDDM. The invention provides
XX a compsn. that has prolonged action after each administration. (Updated
XX on 25-MAR-2003 to correct PW field.) (Updated on 25-MAR-2003 to correct
XX PA field.)
XX
XX Sequence 30 AA:
XX
Query Match 100.0%; Score 155; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HAEGETTSVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGETTSVSSYLEGQAKKEFIAMLVKGR 30
RESUL 3
ID AAR79809 standard; peptide; 30 AA.
XX
XX AAR79809;
XX

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XX
XX 01-FEB-1996 (first entry)
XX
XX Glucagon like peptide GLP-1 (7-36)amide.
XX
XX Glucagon like peptide; GLP-1 (7-36)amide; type II diabetes;
XX non-insulin dependent; divalent metal cation; zinc.
XX
XX Synthetic.
XX
XX Key location/Qualifiers
XX FH Modified-site 30 /note="amidated"
XX
XX EP658568-A1.
XX
XX 21-JUN-1995.
XX
XX 02-DEC-1994; 94EP-00308950.
XX
XX 09-DEC-1993; 93US-00164277.
XX
XX (ELIL) LILLY & CO ELI.
XX
XX Galloway JA, Hoffmann JA;
XX WPI; 1995-217011/29.
XX
XX New divalent metal complexes of glucagon-like peptide 1 - useful for
XX treating type II diabetes.
XX
XX Claim 4; Page 4; 10pp; English.
XX
XX AAR79809 is the glucagon like peptide GLP-1 (7-36)amide. When complexed
XX to a divalent metal cation (pref. zinc) it can be used to treat type II
XX (non-insulin dependent) diabetes
XX
XX Sequence 30 AA:
XX
Query Match 100.0%; Score 155; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HAEGETTSVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGETTSVSSYLEGQAKKEFIAMLVKGR 30
RESUL 4
ID AAR80548 standard; peptide; 30 AA.
XX
XX AAR80548;
XX
XX 28-FEB-1996 (first entry)
XX
XX Human glucagon like peptide (GLP-1).
XX
XX Exendin-4; diabetes mellitus; hyperglycaemia; insulinotropic peptide;
XX glucagon like peptide; GLP-1.
XX
XX Homo sapiens.
XX
XX US5424286-A.
XX
XX 13-JUN-1995.
XX
XX 24-MAY-1993; 93US-00066480.
XX
XX 24-MAY-1993; 93US-00066480.
XX
XX (ENGJ) ENG J.
XX

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PI Eng J;
 XX WPI, 1995-262627/34.
 DR
 XX Stimulating/inhibiting insulin release with exendin polypeptide(s) - for
 PT treating diabetes mellitus and preventing hyperglycaemia.
 XX
 XX Disclosure; Col 5-6; 17pp; English.
 PS
 CC AAR60548 is the human glucagon like peptide (GLP-1), to which the
 CC Heloderma horridum/spectrum exendin-3/4 peptides are analogous. The
 CC exendin peptides are insulinotropic, and can therefore be used in the
 CC treatment of diabetes mellitus (types I or II), and for the prevention of
 CC hyperglycaemia
 CC
 XX Sequence 30 AA;
 SQ
 Query Match 100.0%; Score 155; DB 2; Length 30;
 Best Local Similarity 100.0%; Pred. No. 2.3e-15;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIALVYKGR 30
 DB 1 HAEGFTSDVSSYLEGQAAKEFIALVYKGR 30
 RESULT 5
 AAR69063
 ID AAR69063 standard; peptide; 30 AA.
 AC AAR69063;
 XX
 XX 25-MAR-2003 (revised)
 DT 23-AUG-1995 (first entry)
 FT
 DE Amidated glucagon like peptide 1 (GLP1) (7-36)-NH2.
 XX
 XX Glucagon like peptide; GLP; transpeptidation; endopeptidase; trypsin;
 KM thrombin; cleavage.
 XX
 OS Synthetic.
 XX
 XX Key Location/Qualifiers
 FH Modified-site 30
 FT /label= Arg-NH2
 XX
 XX WO9503405-A2.
 XX
 XX 02-FEB-1995.
 PD
 XX 19-JUL-1994; 94WO-US008125.
 PF
 XX 20-JUL-1993; 93US-00095162.
 PR
 XX (BION-) BIONEERASKA INC.
 PA
 XX Wagner FW, Stout J, Henriksen D, Partridge B, Manning S;
 PI WPI, 1995-075233/10.
 DR
 XX Transpeptidation of recombinant polypeptides - using endopeptidase such
 PT as trypsin or thrombin to modify C-terminal residue.
 XX
 XX Claim 33; Page 50; 69pp; English.
 PS
 CC The naturally occurring sequence of Glucagon like Peptide 1 (GLP1) is
 CC AAR69072. It is a 36 AA peptide that has been recombinantly produced but
 CC without a mechanism for providing for the amidation of the C-terminal Arg
 CC residue. Amidated recombinant GLP1 (7-36)-NH2 (AAR69063) was prepd. from a
 CC multicopy fusion protein contg. four copies of a modified truncated GLP
 CC peptide having AA residues 7-34 of the native polypeptide and the
 CC terminal AA residues A-F-A at residues 35-37 (GLP1 (7-34)-A-F-A)
 CC (AAR69064). The recombinant GLP1 (7-34)-A-F-A can be transpeptidated to

CC yield the modified recombinant native GLP1 (7-36)-NH2 (AAR69063) as
 CC follows. Trypsin was used to cleave the peptide at the Lys-Ala bond in
 CC the presence of either Gly-Arg-NH2 or Gly-Arg-Gly addition units so that
 CC of Gly-Arg-NH2 or Gly-Arg-Gly to the core GLP1 (7-34) to yield either
 CC amidated 7-36 GLP1-NH2 or GLP1 7-36 with a terminal Gly (AAR69065).
 CC (updated on 25-MAR-2003 to correct PN field.)
 CC
 XX Sequence 30 AA;
 SQ
 Query Match 100.0%; Score 155; DB 2; Length 30;
 Best Local Similarity 100.0%; Pred. No. 2.3e-15;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HAEGFTSDVSSYLEGQAAKEFIALVYKGR 30
 DB 1 HAEGFTSDVSSYLEGQAAKEFIALVYKGR 30
 RESULT 6
 AAR98975
 ID AAR98975 standard; peptide; 30 AA.
 AC AAR98975;
 XX
 XX 03-DEC-1996 (first entry)
 DT
 XX GLP1 (7-35)-NH2.
 DE
 XX GLP1; C-amide; C-amidated peptide; alpha-carboxamide;
 KM recombinant protein; fusion protein; transpeptidation.
 XX
 OS Synthetic.
 XX
 XX Key Location/Qualifiers
 FH Modified-site 30
 FT /note= "C-terminal amide"
 XX
 XX WO9617941-A2.
 XX
 XX 13-JUN-1996.
 PD
 XX 07-DEC-1995; 95WO-US015799.
 PF
 XX 07-DEC-1994; 94US-00350528.
 PR
 XX (BION-) BIONEERASKA INC.
 PA
 XX Stout JS, Partridge BE, Henriksen DB, Holmquist B, Wagner FW;
 PI WPI, 1996-287185/29.
 DR
 XX Production of C-terminal alpha-carboxamidated peptide(s) - by cleavage
 PT and transpeptidation of recombinant multicopy peptide(s) or fusion
 PT constructs.
 XX
 XX Example 16; Page 69; 93pp; English.
 PS
 CC Amidated recombinant GLP1(7-36)-NH2 (AAR98975) may be prepd. from a
 CC recombinant multicopy fusion peptide by cleavage, transamidation and
 CC photochemical rearrangement. A DNA construct is formed by joining 4
 CC copies of the coding sequence for GLP1(7-36)-Met (AAR98976) and a linker
 CC peptide including a thrombin cleavage site. Expression in E. coli,
 CC followed by thrombin and CNBr digestion yields GLP1(7-36)-Hse (AAR98977),
 CC which is subjected to transamidation and UV irradiation to yield GLP1(7-
 CC 36)-NH2. The amidated peptide may also be produced via GLP1(7-35)-Met
 CC (AAR98978) using a transpeptidation reaction
 CC
 XX Sequence 30 AA;
 SQ
 Query Match 100.0%; Score 155; DB 2; Length 30;
 Best Local Similarity 100.0%; Pred. No. 2.3e-15;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

XX	(EHLI) LILLY & CO EHLI .
PA	
XX	Dimarchi RD, Efendic S;
XX	
DR	WPI; 1998-286595/25.
XX	
PT	Use of glucagon-like peptide-1 and analogues and derivatives - to reduce
XX	body weight, e.g., in treatment of obesity.
XX	
PS	Claim 12; Page 18; 42pp; English.
XX	
CC	The patent describes a new method of reducing body weight which comprises
CC	administration of a composition comprising: (i) glucagon-like peptide-1
CC	(GLP-1); (ii) a GLP-1 analogue; (iii) a GLP-1 derivative; (iv) an agonist
CC	of the GLP-1 receptor; (v) an agonist of the GLP-1 signal transduction
CC	cascade; (vi) a compound which stimulates synthesis of endogenous GLP-1;
CC	(vii) a compound that stimulates release of endogenous GLP-1; or (viii) a
CC	salt of a material described in (i)-(viii). The method may be used for
CC	treatment of obesity. The present sequence, GLP-1 (7-36) amide,
CC	represents a preferred GLP-1 compound which can be used in the method
SQ	
XX	Sequence 30 AA:
QY	Query Match 100.0%; Score 155; DB 2; Length 30; Best Local Similarity 100.0%; Pred. No. 2,3e-15; Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0
Db	1 HAEGFTSDVSSYLEGCAKEFLAWLTKGR 30 1 HAEGFTSDVSSYLEGCAKEFLAWLTKGR 30
RESULT 11	
ID	AAM50906 standard; peptide; 30 AA.
AC	AAM50906;
XX	
DT	17-AUG-1998 (first entry)
XX	
DE	Glucagon-like peptide-1 analogue SEQ ID NO:5.
XX	
KM	Glucagon-like peptide-1; GLP-1 (7-37); GLP-1 analogue; surgical trauma;
KX	stress; hormonal response; insulin resistance; catabolic reaction; human
KW	insulin hormone.
OS	Synthetic.
OS	Homo sapiens.
XX	
FH	Key
FT	Modified-site
FT	Location/Qualifiers
FT	30
XX	/note="amidated"
XX	
PN	WO9808873-A1.
XX	
XX	
PD	05-MAR-1998.
XX	
PF	26-AUG-1997; 97MO-US015042.
XX	
PR	30-AUG-1996; 96US-0024982P.
XX	
PR	21-AUG-1997; 97US-00916991.
XX	
PA	(EHLI) LILLY & CO EHLI .
XX	
P1	Efendic S;
XX	
DR	WPI; 1998-239722/21.
XX	
PT	Use of glucagon-like peptide-1 and analogues and their derivatives - to
PT	attenuate post-surgical catabolic changes, insulin resistance and
PT	hormonal responses to stress.
XX	
XS	Claim 1; Page 13; 42pp; English.

XX The present sequence represents a glucagon-like peptide-1 (GLP-1)
CC analogue, which is used in the methods of the invention. The methods are:
CC (1) for attenuating post-surgical catabolic changes and insulin
CC resistance, comprising administering glucagon-like peptide-1 (GLP-1), a
CC GLP-1 analogue, a GLP-1 derivative, or a salt of this compound; (2) for
CC attenuating post-surgical catabolic changes and hormonal responses to
CC stress, comprising administering a compound which exerts insulinotropic
CC activity by interacting with the same receptor (or receptors) with which
CC GLP-1, GLP-1 analogues and GLP-1 derivatives interact in exerting their
CC insulinotropic activity, and (3) for attenuating post-surgical catabolic
CC changes and hormonal responses to stress, comprising administering a
CC compound which enhances insulin sensitivity by interacting with the same
CC receptor (or receptors) with which GLP-1, GLP-1 analogues and GLP-1
CC derivatives interact to enhance insulin sensitivity. The processes are
CC useful for improving recovery after surgery by preventing the catabolic
CC reaction and insulin resistance caused by surgical trauma and exacerbated
CC by pre-operative fasting. GLP-1's short half-life, and hence the need for
CC continuous administration, are not disadvantages, as the patient is
CC usually hospitalised before surgery, and fluids are continuously
CC administered parenterally, before, during and after surgery
XX

XX Sequence 30 AA:

Query Match 100.0%; Score 155; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAWLTVGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAWLTVGR 30

RESULT 12

AAV03719 standard; peptide; 30 AA.

AAV03719;

08-JUN-1999 (first entry)

Amino acid sequence of GLP-1.

Exendin; agonist; diabetes; disorder; plasma glucose; gastric;
diagnostic; gastro-intestinal; radiological; generic; GLP-1.

Synthetic.

Key Location/Qualifiers
Modified-site 30 /note="C-terminal amide"

MO9907404-A1.

18-FEB-1999.

06-AUG-1998; 98MO-US016387.

08-AUG-1997; 97US-0055404P.

(AMYL-) AMYLIN PHARM INC.

Beelley NRA, Prickett KS;

WPI; 1999-180403/15.

New exendin agonists - useful in the treatment of Type I and II diabetes.

Disclosure; Fig 4; 70pp; English.

The invention relates to exendin agonists which slow gastric emptying and
lower plasma glucose levels. The peptides are of the formula Xaa1-Xaa2-
Xaa3-Gly-Thr-Xaa4-Xaa5-Xaa6-Xaa7-Xaa8-Ser-Lys-Gln-Xaa9-Glu-Ala-

CC Val-Arg-Leu-Xaa10-Xaa11-Xaa12-Xaa13-Leu-Iys-Asn-Gly-Xaa14-Ser-Ser-
CC Gly-Ala-Xaa15-Xaa16-Xaa17-Xaa18-Z; wherein: Xaa1 is His, Arg or Tyr;
CC Xaa2 is Ser, Gly, Ala, or Thr; Xaa3 is Asp or Glu; Xaa4 is Phe, Tyr, or
CC naphthylalanine; Xaa5 is Thr or Ser; Xaa6 is Ser or Thr; Xaa7 is Asp or
CC Glu; Xaa8 is Leu, Ile, Val, penitylglycine, or Met; Xaa9 is Leu, Ile,
CC penitylglycine, Val, or Met; Xaa10 is Phe, Tyr, or naphthylalanine; Xaa11
CC is Ile, Val, Leu, penitylglycine, tert-butylglycine, or Met; Xaa12 is Glu
CC or Asp; Xaa13 is Trp, Phe, Tyr, or naphthylalanine; Xaa14, Xaa15, Xaa16,
CC and Xaa17 are independently Pro, homoproline, 3Hyp, 4Hyp, thiorproline, N-
CC alkylglycine, N-alkylpenitylglycine, or N-alkylalanine; Xaa18 is Ser, Thr,
CC or Tyr; and Z is -OH or -NH2 with the proviso that the sequence is not
CC the amino acid sequences shown in AAV03717 and AAV03718. The
CC specification claims for a second peptide of the above formula where Xaa1
CC is His, Arg, Tyr or 4-imidazopropionyl. The exendin agonists are used to
CC treat Type I and II diabetes, disorders which would be benefited by
CC agents which lower plasma glucose levels, and disorders which would be
CC benefited by agents useful in delaying and/or slowing gastric emptying.
CC Delayed gastric emptying is a useful diagnostic aid in gastro-intestinal
CC radiological examinations. The present sequence represents the amino acid
CC sequence of GLP-1
XX

XX Sequence 30 AA:

Query Match 100.0%; Score 155; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAWLTVGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAWLTVGR 30

RESULT 13

AAV31503 standard; peptide; 30 AA.

AAV31503;

08-NOV-1999 (first entry)

Glucagon-like peptide (GLP-1) sequence.

Exendin; agonist; GLP-1; glucagon-like peptide; toxic hypervolemia;
diuresis; renal plasma flow; glomerular filtration rate; pre-eclampsia;
eclampsia of pregnancy; cardiac contractility; renal failure; diuretic;
congestive heart failure; nephrotic syndrome; pulmonary edema; cirrhosis;
hypertension; urine flow.

Synthetic.
Homo sapiens.

Key Location/Qualifiers
Modified-site 30 /note="C-terminal amide"

WO9940788-A1.

19-AUG-1999.

05-FEB-1999; 99MO-US002554.

13-FEB-1998; 98US-0075122P.

(AMYL-) AMYLIN PHARM INC.

Young AA, Vine W, Beelley NRA, Prickett K;

WPI; 1999-527332/44.

Increasing urine flow by administering peptides or peptide agonists.
Disclosure; Page 7; 94pp; English.

CC The invention relates to new methods of increasing urine flow that
 CC comprises administering an extendin or extendin agonist, or a GLP-1
 CC (glucagon-like peptide) or GLP-1 agonist. The new methods using an
 CC extendin, extendin agonist, GLP-1 or GLP-1 agonist are useful for
 CC increasing urine flow, decreasing potassium concentration in urine,
 CC preventing or alleviating a disorder associated with toxic hypervolemia
 CC (renal failure, congestive heart failure, nephrotic syndrome, pulmonary
 CC edema, cirrhosis, or hypertension). They can also be used for inducing
 CC rapid diuresis, preparing an individual for surgical procedure,
 CC increasing renal plasma flow and glomerular filtration rate, treating pre-
 CC-eclampsia or eclampsia of pregnancy, and increasing a contractility
 CC disorder that can be alleviated by increasing cardiac contractility
 CC (congestive heart failure, pulmonary edema, systemic edema or renal
 CC failure). Unlike prior art diuretics, the new methods increase urine
 CC excretion and sodium excretion without increasing potassium loss, and are
 CC fast acting. They have a prolonged duration of action, are isotropic,
 CC have a low toxicity, and are easily administered intravenously. The
 CC present sequence represents a GLP-1 peptide which can be used in the
 CC methods of the invention

CC Sequence 30 AA;

Query Match 100.0%; Score: 155; DB 2; Length 30;
 Best Local Similarity 100.0%; Pred. No. 2.3e-15;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30
 DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 14

AA34198
 ID AAY34198 standard; peptide; 30 AA.

XX AAY34198;

DT 16-NOV-1999 (first entry)

XX GLP-1 mutant peptide, GLP-1(7-36).

XX GLP-1, Glucagon-like peptide-1; human; type I diabetes; type II diabetes;

XX Obesity; therapy; mutain.

XX Homo sapiens.

XX Synthetic.

XX Key location/Qualifiers
 FT Misc-difference 30 /note= "optionally amidated"

XX WO9943341-A1.

XX 02-SEP-1999.

XX 25-FEB-1999; 99WO-DK000084.

XX 27-FEB-1998; 98DK-00000268.

XX 27-FEB-1998; 98DK-00000272.

XX (NOVO) NOVO-NORDISK AS.

XX Knudsen LB, Huusfeldt PO, Nielsen PF, Kaarholm NC, Olsen HB;

XX Bjorn SE;

XX WPI; 1999-540500/45.

XX Composition containing stabilized derivatives of glucagon-like peptide-1
 XX with high alpha-helix content, for treating diabetes and obesity.

XX Claim 30; Page: 63pp; English.

XX This sequence represents a mutant of the human glucagon-like peptide-1

CC (GLP-1), and has a helix content (determined by circular dichroism at 222
 CC nm in water at 20-24 degrees C) over 25, preferably 25-50, % at peptide
 CC concentration about 10 microm. The GLP-1 mutant can be used in a
 CC pharmaceutical composition of the invention. The compositions are used to
 CC treat diabetes (both type I and particularly type II) and/or obesity.
 CC They have better solubility and/or stability (against endogenous
 CC diaminopeptidyl peptidase) than parent peptides, with long persistence in
 CC the plasma and retention of biological activity. They form partially
 CC structured micelle-like aggregates in solution, with the helix content
 CC practically independent of concentration. NOTE: This sequence was created
 CC from the human GLP-1 sequence using information given in the
 CC specification

CC Sequence 30 AA;

Query Match 100.0%; Score: 155; DB 2; Length 30;
 Best Local Similarity 100.0%; Pred. No. 2.3e-15;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30
 DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 15

AA39773
 ID AAY39773 standard; peptide; 30 AA.

XX AAY39773;

DT 26-NOV-1999 (first entry)

XX Glucagon like peptide-1 (7-36).

XX Glucagon-like peptide-1; GLP-1; appetite suppression; human; diabetes;

XX spontaneous food intake; therapy.

XX Homo sapiens.

XX Key location/Qualifiers
 FT Misc-difference 29 /note= "amidated"

XX WO9947161-A1.

XX 23-SEP-1999.

XX 16-MAR-1999; 99WO-US005571.

XX 19-MAR-1998; 98US-0078544P.

XX (BION-) BIONEERASKA INC.

XX Goke B, Beglinger C, Coolidge TR;

XX WPI; 1999-561859/47.

XX New composition for controlling food intake especially in diabetes
 XX sufferers.

XX Claim 5; Page 22; 35pp; English.

XX This sequence represents a glucagon-like peptide-1 sequence used in the
 XX composition of the invention. The composition is for appetite
 XX suppression, and comprises a compound binding to a GLP-1 receptor and a
 XX pharmaceutical carrier. The composition can be administered to control
 XX appetite and/or reduce spontaneous food intake in humans, especially in
 XX humans with diabetes

XX Sequence 30 AA;

Query Match 100.0%; Score: 155; DB 2; Length 30;

Best Local Similarity 100.0%; Pred. No. 2.3e-15;

Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30

DB 1 HAEGETSDVSSYLEGQAKKEFIAMLVKGR 30

	Matches	30;	Conservative	0;	Mismatches	0;	Indels	0;	Gaps	0;
QY	1	HAGGTFTSDVSSYLEGCAAKEPIAMLVKGR	30							
DB	1	HAGGTFTSDVSSYLEGCAAKEPIAMLVKGR	30							

Search completed: December 20, 2004, 09:01:01
CPU time : 71 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: December 20, 2004, 08:54:47 ; Search time 48 Seconds
(without alignments)
41.449 Million cell updates/sec

Title: US-10-722-733-1_COPY_7_36

Perfect score: 155
Sequence: 1 HAAGTTSVSSYLEGQAKERFLMWKGR 30

Scoring table:
BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 478139 segs, 6631800 residues

Total number of hits satisfying chosen parameters: 478139

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A.COMB.pep:*
2: /cgn2_6/ptodata/1/iaa/5B.COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/6A.COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/6B.COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCtus.COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfile1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	155	100.0	30	1	US-08-066-480-6
2	155	100.0	30	1	US-08-095-162-1
3	155	100.0	30	1	US-08-470-220A-1
4	155	100.0	30	2	US-08-927-227-1
5	155	100.0	30	3	US-08-967-374-1
6	155	100.0	30	3	US-09-348-136-1
7	155	100.0	30	3	US-08-961-405A-5
8	155	100.0	30	3	US-08-915-918A-5
9	155	100.0	30	3	US-09-303-596-4
10	155	100.0	30	3	US-08-472-349-3
11	155	100.0	30	3	US-09-333-415-4
12	155	100.0	30	3	US-09-585-181A-4
13	155	100.0	30	3	US-09-209-799D-10
14	155	100.0	30	3	US-09-975-905-1
15	155	100.0	30	4	US-09-505-991-1
16	155	100.0	30	4	US-09-573-809-1
17	155	100.0	30	4	US-09-303-016-4
18	155	100.0	30	4	US-09-212-663-4
19	155	100.0	30	4	US-09-614-847-114
20	155	100.0	30	4	US-09-997-792A-8
21	155	100.0	30	4	US-09-805-507-4
22	155	100.0	30	4	US-09-585-186A-5
23	155	100.0	30	4	US-09-830-323-1
24	155	100.0	30	4	US-09-622-105-3
25	155	100.0	30	4	US-10-125-255-1
26	155	100.0	30	4	US-09-859-804-4
27	155	100.0	30	4	US-09-656-121-11

28	155	100.0	30	4	US-09-834-229A-5	Sequence 5, Appli
29	155	100.0	30	5	PCT-US95-15800-27	Sequence 27, Appli
30	155	100.0	31	1	US-09-025-951-1	Sequence 1, Appli
31	155	100.0	31	1	US-08-095-162-3	Sequence 3, Appli
32	155	100.0	31	1	US-08-295-933A-1	Sequence 1, Appli
33	155	100.0	31	1	US-08-470-220A-3	Sequence 3, Appli
34	155	100.0	31	2	US-08-807-263-3	Sequence 3, Appli
35	155	100.0	31	3	US-08-967-374-3	Sequence 3, Appli
36	155	100.0	31	3	US-08-961-405A-1	Sequence 1, Appli
37	155	100.0	31	3	US-08-915-918A-1	Sequence 3, Appli
38	155	100.0	31	3	US-09-303-596-3	Sequence 2, Appli
39	155	100.0	31	3	US-08-472-349-2	Sequence 2, Appli
40	155	100.0	31	3	US-09-623-618B-2	Sequence 1, Appli
41	155	100.0	31	3	US-09-623-618B-17	Sequence 17, Appli
42	155	100.0	31	3	US-09-623-618B-27	Sequence 27, Appli
43	155	100.0	31	3	US-09-623-618B-28	Sequence 28, Appli
44	155	100.0	31	3	US-09-333-415-3	Sequence 3, Appli
45	155	100.0	31	3	US-09-209-799D-1	Sequence 1, Appli

ALIGNMENTS

RESULT 1
US-08-066-480-6
Sequence 6, Application US/08066480
Patent No. 5424286
GENERAL INFORMATION:
APPLICANT: Eng, John
TITLE OF INVENTION: Pharmaceutical Compositions And Use of
EXENDIN-3 and EXENDIN-4 for Treatment of Diabetes Mellitus
TITLE OR INVENTION: 7
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSES: Allegretti & Witcoff, Ltd.
STREET: 10 S. Wacker Drive
CITY: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60606
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/066,480
FILING DATE: 24-MAR-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: McDowell, John J
REGISTRATION NUMBER: 26,949
REFERENCE/DOCKET NUMBER: 93,084
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-715-1000
TELEFAX: 312-715-1234
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
SINGLENESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
FEATURE:
NAME/KEY: Peptide
LOCATION: 1..30
OTHER INFORMATION: /label= GIP-1-7-36
OTHER INFORMATION: /note= "GIP-1(7-36) fragment"
US-08-066-480-6
Query Match 100.0%; Score 155; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 8,6e-16;
Matches 30; Conservative 0; Mismatches 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30
1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30

RESULT 2
US-08-095-162-1
Sequence 1, Application US/08095162
Patent No. 5512459
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLES OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5512459west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/095,162
FILING DATE: 20-JUL-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-095-162-1

Query Match 100.0%; Score 155; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30
1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30

RESULT 3
US-08-470-220A-1
Sequence 1, Application US/08470220A
Patent No. 5707826
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLES OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26

CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470,220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095,162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-470-220A-1

Query Match 100.0%; Score 155; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30
1 HAEGFTSDVSSYLEGQAAKEFIAMLYKGR 30

RESULT 4
US-08-927-227-1
Sequence 1, Application US/08927227A
Patent No. 5977071
GENERAL INFORMATION:
APPLICANT: Galloway, James A.
APPLICANT: Hoffmann, James A.
TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
FILE REFERENCE: X-9332B
CURRENT APPLICATION NUMBER: US/08/927,227A
CURRENT FILING DATE: 1997-09-10
NUMBER OF SEQ ID NOS: 1
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 30
TYPE: PPT
ORGANISM: Homo sapiens
FEATURES:
OTHER INFORMATION: The arginine residue at position 30 is modified so
OTHER INFORMATION: as to replace the terminal carboxyl group with an
OTHER INFORMATION: amine.
US-08-927-227-1

Query Match 100.0%; Score 155; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30

RESULT 5
US-08-967-374-1
Sequence 1, Application US/08967374
Patent No. 6037143
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967,374
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/520,485
FILING DATE: 29-AUG-1995
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G.
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648-32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-9081
TELEFAX: 612-332-5300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-967-374-1

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30

RESULT 6
US-09-348-136-1
Sequence 1, Application US/09348136
Patent No. 6133235
GENERAL INFORMATION:
APPLICANT: Galloway, James A.
APPLICANT: Hoffman, James A.
TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
TITLE OF INVENTION: COMPOSITIONS AND METHODS
FILE REFERENCE: X-9332B

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30

RESULT 7
US-08-961-405A-5
Sequence 5, Application US/08961405A
Patent No. 61391102
GENERAL INFORMATION:
APPLICANT: Dimarchi, Richard D.
APPLICANT: Elendic, Snad
TITLE OF INVENTION: USE OF GLP-1 ANALOGS AND DERIVATIVES
TITLE OF INVENTION: ADMINISTERED PERIPHERALLY IN REGULATION OF OBESITY
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: BARNES & THORNBURG
STREET: 200 W. Madison, Suite 2601
CITY: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60606
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,405A
FILING DATE: 30-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/030,213
FILING DATE: 05-NOV-1996
ATTORNEY/AGENT INFORMATION:
NAME: Martin, Alice O.
REGISTRATION NUMBER: 35,601
REFERENCE/DOCKET NUMBER: 3051/90264
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-357-1313
TELEFAX: 312-759-5646
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-961-405A-5

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30

RESULT 7
US-08-961-405A-5
Sequence 5, Application US/08961405A
Patent No. 61391102
GENERAL INFORMATION:
APPLICANT: Dimarchi, Richard D.
APPLICANT: Elendic, Snad
TITLE OF INVENTION: USE OF GLP-1 ANALOGS AND DERIVATIVES
TITLE OF INVENTION: ADMINISTERED PERIPHERALLY IN REGULATION OF OBESITY
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: BARNES & THORNBURG
STREET: 200 W. Madison, Suite 2601
CITY: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60606
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,405A
FILING DATE: 30-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/030,213
FILING DATE: 05-NOV-1996
ATTORNEY/AGENT INFORMATION:
NAME: Martin, Alice O.
REGISTRATION NUMBER: 35,601
REFERENCE/DOCKET NUMBER: 3051/90264
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-357-1313
TELEFAX: 312-759-5646
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-961-405A-5

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30

RESULT 8

US-08-915-918A-5

Sequence 5, Application US/08915918A

Patent No. 6277819

GENERAL INFORMATION:

APPLICANT: Biendic, Sued

TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF

TITLE OF INVENTION: MYOCARDIAL INFARCTION

NUMBER OF SEQUENCES: 6

CORRESPONDENCE ADDRESS:

ADDRESSEE: BRINKS, HOFER, GILSON & LIONE

STREET: NBC Tower - Suite 3600, 455 N. Cityfront

CITY: Chicago

STATE: Illinois

COUNTRY: USA

ZIP: 60611-5599

COMPUTER READABLE FORM:

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/915,918A

FILING DATE: 21-AUG-1997

CLASSIFICATION: 514

ATTORNEY/AGENT INFORMATION:

NAME: Martin, Alice O.

REGISTRATION NUMBER: 35,601

REFERENCE/DOCKET NUMBER: 8792/28

TELECOMMUNICATION INFORMATION:

TELEPHONE: 312-321-4200

TELEFAX: 312-321-4299

INFORMATION FOR SEQ ID NO: 5:

SEQUENCE CHARACTERISTICS:

LENGTH: 30 amino acids

TYPE: amino acid

STRANDEDNESS:

TOPOLOGY: linear

MOLECULE TYPE: peptide

US-08-915-918A-5

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;

Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30

RESULT 9

US-09-302-596-4

Sequence 4, Application US/09302596

Patent No. 6284725

GENERAL INFORMATION:

APPLICANT: Coolidge, Thomas R.

APPLICANT: Enlers, Mario R.W.

TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of

TITLE OF INVENTION: Ischemic and Reperfused Tissue

FILE REFERENCE: P03660US

CURRENT APPLICATION NUMBER: US/09/302,596

CURRENT FILING DATE: 1999-04-30

PRIOR APPLICATION NUMBER: 60/103,498

PRIOR FILING DATE: 1998-10-08

NUMBER OF SEQ ID NOS: 13

SOFTWARE: Patentin Ver. 2.0

SEQ ID NO 4

LENGTH: 30
TYPE: PRT
ORGANISM: mammalian
US-09-302-596-4

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;

Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30

RESULT 10

US-08-472-349-3

Sequence 3, Application US/08472349

Patent No. 6284727

GENERAL INFORMATION:

APPLICANT: Kim, Yesook

APPLICANT: Lambert, William J.

APPLICANT: Qi, Hong

APPLICANT: Gelfand, Robert A.

APPLICANT: Geoghegan, Kieran F.

APPLICANT: Danley, Dennis E.

TITLE OF INVENTION: Prolonged Delivery of Peptides

NUMBER OF SEQUENCES: 7

CORRESPONDENCE ADDRESS:

ADDRESSEE: Pfizer Inc

STREET: 235 East 42nd Street, 20th Floor

CITY: New York

STATE: New York

COUNTRY: U.S.A.

ZIP: 10017-5755

COMPUTER READABLE FORM:

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/472,349

FILING DATE:

CLASSIFICATION: 514

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/181,655

FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Shevka, Robert F.

REGISTRATION NUMBER: 31,304

REFERENCE/DOCKET NUMBER: PC8391

TELECOMMUNICATION INFORMATION:

TELEPHONE: (212)573-1189

TELEFAX: (212)573-1939

TELEX: N/A

INFORMATION FOR SEQ ID NO: 3:

SEQUENCE CHARACTERISTICS:

LENGTH: 30 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: peptide

HYPOTHETICAL: NO

ANTI-SENSE: NO

FRAGMENT TYPE: N-terminal

ORIGINAL SOURCE:

ORGANISM: N/A

STRAIN: N/A

INDIVIDUAL ISOLATE: N/A

HAPLOTYPE: N/A

CELL LINE: N/A

IMMEDIATE SOURCE:

LIBRARY: N/A

CLONE: N/A

POSITION IN GENOME:
CHROMOSOME/SEGMENT: N/A
MAP POSITION: N/A
UNITS: N/A
US-08-472-349-3

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30

RESULT 11
US-09-333-415-4
Sequence 4, Application US/09333415
Patent No. 6344180
GENERAL INFORMATION:
APPLICANT: Holst, Jens J.
APPLICANT: Vilshof, Tina
TITLE OF INVENTION: GLP-1 as a Diagnostic Test to Determine Beta-Cell
TITLE OF INVENTION: Function and the Presence of the Condition of IGT and
FILE REFERENCE: P03987U80
CURRENT APPLICATION NUMBER: US/09/333.415
CURRENT FILING DATE: 1999-06-15
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
US-09-333-415-4

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30

RESULT 12
US-09-585-181A-4
Sequence 4, Application US/09585181A
Patent No. 6358924
GENERAL INFORMATION:
APPLICANT: Hoffmann, James
TITLE OF INVENTION: GLP-1 FORMULATIONS
FILE REFERENCE: X-11368
CURRENT APPLICATION NUMBER: US/09/585.181A
CURRENT FILING DATE: 2001-08-22
PRIOR APPLICATION NUMBER: US 60/067,600
PRIOR FILING DATE: 1997-12-05
NUMBER OF SEQ ID NOS: 5
SOFTWARE: PatentIn version 3.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: MOD_RES
LOCATION: (30)..(30)
OTHER INFORMATION: AMIDATION
US-09-585-181A-4

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30

RESULT 13
US-09-209-799D-10
Sequence 10, Application US/09209799D
Patent No. 6380357
GENERAL INFORMATION:
APPLICANT: Hermeling, Ronald
APPLICANT: Hoffmann, James
APPLICANT: Narasimhan, Chakravarthy
TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
FILE REFERENCE: X-10242
CURRENT APPLICATION NUMBER: US/09/209.799D
CURRENT FILING DATE: 1998-12-11
NUMBER OF SEQ ID NOS: 29
SOFTWARE: PatentIn version 3.0
SEQ ID NO 10
LENGTH: 30
TYPE: PRT
ORGANISM: Artificial
FEATURE:
OTHER INFORMATION: synthetic construct
US-09-209-799D-10

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30

RESULT 14
US-09-975-905-1
Sequence 1, Application US/09975905
Patent No. 6388053
GENERAL INFORMATION:
APPLICANT: Galloway, John A
APPLICANT: Hoffmann, James A
TITLE OF INVENTION: Glucagon-Like Inulinotropic Peptides, Compositions and Methods
FILE REFERENCE: X-9332E
CURRENT APPLICATION NUMBER: US/09/975.905
CURRENT FILING DATE: 2001-10-12
PRIOR APPLICATION NUMBER: 09/573,809
PRIOR FILING DATE: 2000-05-18
NUMBER OF SEQ ID NOS: 1
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: MOD_RES
LOCATION: (30)..(30)
OTHER INFORMATION: The arginine residue at position 30 is modified so as to replace
OTHER INFORMATION: the terminal carboxyl group with an amine.
US-09-975-905-1

Query Match 100.0%; Score 155; DB 3; Length 30;
Best Local Similarity 100.0%; Pred. No. 8.6e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAQAEFIAMLVKGR 30

RESULT 15
US-09-505-991-1

Sequence 1, Application US/09505991
Patent No. 6403361

GENERAL INFORMATION:

APPLICANT: Wagner, Fred W.

Stout, Jay
Henriksen, Dennis
Partridge, Bruce

Manning, Shane

TITLE OF INVENTION: Enzymatic Method for Modification of Recombinant Polypeptides

NUMBER OF SEQUENCES: 26

CORRESPONDENCE ADDRESS:

ADDRESSER: Merchant & Gould

STREET: 3100 No. 6403361west Center

CITY: Minneapolis

STATE: MN

COUNTRY: USA

ZIP: 55402

COMPUTER READABLE FORM:

MEDIUM TYPE: floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent in Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/505,991

FILING DATE: 17-Feb-2000

CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/520,485

FILING DATE: <Unknown>

ATTORNEY/AGENT INFORMATION:

NAME: Carter, Charles G.

REGISTRATION NUMBER: 35,093

TELEPHONE: 612-332-5300

TELEFAX: 612-332-9081

TELECOMMUNICATION INFORMATION:

INFORMATION FOR SEQ ID NO: 1:

SEQUENCE CHARACTERISTICS:

LENGTH: 30 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: peptide

IMMEDIATE SOURCE:

CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)

SEQUENCE DESCRIPTION: SEQ ID NO: 1:

US-09-505-991-1

Query Match

Best Local Similarity 100.0%; Score 155; DB 4; Length 30;

Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAVLVGR 30

1 HAEGFTSDVSSYLEGQAAKEFIAVLVGR 30

DB

Search completed: December 20, 2004, 08:59:45

Job time: 51 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: December 20, 2004, 08:54:47 ; Search time 1036 Seconds

(without alignments)
10.362 Million cell updates/sec

Title: US-10-722-733-1_COPY_7_36

Sequence: 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1589859 seqs, 357834939 residues

Total number of hits satisfying chosen parameters: 1589859

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

Published Applications AA:*

- 1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
- 2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
- 3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
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- 5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
- 6: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
- 7: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
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- 9: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
- 10: /cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
- 11: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
- 12: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
- 13: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
- 14: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
- 15: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
- 16: /cgn2_6/ptodata/1/pubpaa/US10_PUBCOMB.pep:*
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- 18: /cgn2_6/ptodata/1/pubpaa/US11_NEW_PUB.pep:*
- 19: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*
- 20: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	155	100.0	30	9	US-09-209-799D-10
2	155	100.0	30	9	US-09-851-738-4
3	155	100.0	30	9	US-09-858-880-2
4	155	100.0	30	9	US-09-805-507-4
5	155	100.0	30	9	US-09-858-804-4
6	155	100.0	30	9	US-09-982-978-4
7	155	100.0	30	9	US-09-953-021B-4
8	155	100.0	30	10	US-09-834-229A-5
9	155	100.0	30	10	US-09-997-792-10
10	155	100.0	30	13	US-10-072-540A-4
11	155	100.0	30	13	US-10-135-255-1
12	155	100.0	30	14	US-10-091-258-4
13	155	100.0	30	14	US-10-055-259-4

14	155	100.0	30	14	US-10-265-345A-2	Sequence 2, Appl1
15	155	100.0	30	14	US-10-097-230-3	Sequence 3, Appl1
16	155	100.0	30	14	US-10-201-288-28	Sequence 28, Appl1
17	155	100.0	30	14	US-10-378-094-48	Sequence 48, Appl1
18	155	100.0	30	15	US-10-345-751-2	Sequence 2, Appl1
19	155	100.0	30	15	US-10-322-839-4	Sequence 4, Appl1
20	155	100.0	30	15	US-10-215-372-25	Sequence 25, Appl1
21	155	100.0	30	15	US-10-629-261-1	Sequence 1, Appl1
22	155	100.0	30	16	US-10-281-226-114	Sequence 114, App
23	155	100.0	30	16	US-10-769-080-1	Sequence 1, Appl1
24	155	100.0	30	16	US-10-671-740-1	Sequence 1, Appl1
25	155	100.0	30	16	US-10-679-746-1	Sequence 1, Appl1
26	155	100.0	30	16	US-10-704-409-9	Sequence 9, Appl1
27	155	100.0	30	16	US-10-716-326-25	Sequence 25, Appl1
28	155	100.0	30	16	US-10-756-774-11	Sequence 11, Appl1
29	155	100.0	30	16	US-10-811-645-5	Sequence 5, Appl1
30	155	100.0	30	17	US-10-741-534-1	Sequence 1, Appl1
31	155	100.0	30	17	US-10-485-140-1	Sequence 1, Appl1
32	155	100.0	30	17	US-10-485-140-4	Sequence 4, Appl1
33	155	100.0	31	9	US-09-754-723-1	Sequence 1, Appl1
34	155	100.0	31	9	US-09-420-785A-3	Sequence 3, Appl1
35	155	100.0	31	9	US-09-209-799D-1	Sequence 1, Appl1
36	155	100.0	31	9	US-09-876-388-2	Sequence 2, Appl1
37	155	100.0	31	9	US-09-876-388-17	Sequence 17, Appl1
38	155	100.0	31	9	US-09-876-388-27	Sequence 27, Appl1
39	155	100.0	31	9	US-09-876-388-28	Sequence 28, Appl1
40	155	100.0	31	9	US-09-851-738-3	Sequence 3, Appl1
41	155	100.0	31	9	US-09-858-880-4	Sequence 4, Appl1
42	155	100.0	31	9	US-09-805-507-3	Sequence 3, Appl1
43	155	100.0	31	9	US-09-859-804-3	Sequence 3, Appl1
44	155	100.0	31	9	US-09-982-978-3	Sequence 3, Appl1
45	155	100.0	31	9	US-09-953-021B-3	Sequence 3, Appl1

ALIGNMENTS

RESULT 1
US-09-209-799D-10
Sequence 10, Application US/09209799D
Publication No. US20010014668A1
GENERAL INFORMATION:
APPLICANT: Hoffmann, Ronald
APPLICANT: Hoffmann, James
TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
FILE REFERENCE: X-10242
CURRENT APPLICATION NUMBER: US/09/209,799D
CURRENT FILING DATE: 1998-12-11
NUMBER OF SEQ ID NOS: 29
SOFTWARE: PatentIn version 3.0
SEQ ID NO 10
LENGTH: 30
TYPE: PRT
ORGANISM: Artificial
FEATURE:
OTHER INFORMATION: synthetic construct
US-09-209-799D-10

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 2
US-09-851-738-4
Sequence 4, Application US/09851738
Patent No. US20020055460A1
GENERAL INFORMATION:

APPLICANT: Coolidge, Thomas R.
APPLICANT: Ehlers, Mario R.W.
TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
FILE REFERENCE: P03660US1
CURRENT APPLICATION NUMBER: US/09/851,738
PRIOR FILING DATE: 2001-05-09
PRIOR APPLICATION NUMBER: 09/302,596
PRIOR FILING DATE: 1999-04-30
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: mammalian
US-09-851-738-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30

RESULT 3
US-09-858-880-2
Sequence 2, Application US/09858880
Publication No. US20020061838A1
GENERAL INFORMATION:
APPLICANT: Dormady, Barton
APPLICANT: Holmquist, Daniel
TITLE OF INVENTION: Peptide Pharmaceutical Formulations
FILE REFERENCE: 1627.020US1
CURRENT APPLICATION NUMBER: US/09/858,880
PRIOR FILING DATE: 2001-05-17
PRIOR APPLICATION NUMBER: US 60/205,377
PRIOR FILING DATE: 2000-05-17
PRIOR APPLICATION NUMBER: US 60/205,262
PRIOR FILING DATE: 2000-05-19
NUMBER OF SEQ ID NOS: 13
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 2
LENGTH: 30
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: A GLP-1 derivative
US-09-858-880-2

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30

RESULT 4
US-09-805-507-4
Sequence 4, Application US/09805507
Patent No. US20020098195A1
GENERAL INFORMATION:
APPLICANT: COOLIDGE, THOMAS R.
APPLICANT: EHLERS, MARIO
TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
FILE REFERENCE: 089187/0395
CURRENT APPLICATION NUMBER: US/09/805,507
PRIOR FILING DATE: 2001-03-14
PRIOR APPLICATION NUMBER: 09/859,804
PRIOR FILING DATE: 2001-05-18

NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: Unknown Organism
FEATURE:
OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
US-09-805-507-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30

RESULT 5
US-09-859-804-4
Sequence 4, Application US/09859804
Patent No. US20020107206A1
GENERAL INFORMATION:
APPLICANT: COOLIDGE, THOMAS R.
APPLICANT: EHLERS, MARIO
TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
FILE REFERENCE: 089187/0395
CURRENT APPLICATION NUMBER: US/09/859,804
PRIOR FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 60/205,239
PRIOR FILING DATE: 2000-05-19
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: Unknown Organism
FEATURE:
OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
US-09-859-804-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAAKEFIAVLVKGR 30

RESULT 6
US-09-982-978-4
Sequence 4, Application US/09982978
Patent No. US20020146405A1
GENERAL INFORMATION:
APPLICANT: COOLIDGE, THOMAS R.
APPLICANT: EHLERS, MARIO
TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
FILE REFERENCE: 089187/0395
CURRENT APPLICATION NUMBER: US/09/982,978
PRIOR FILING DATE: 2001-10-22
PRIOR APPLICATION NUMBER: 09/859,804
PRIOR FILING DATE: 2001-05-18
PRIOR APPLICATION NUMBER: 60/205,239
PRIOR FILING DATE: 2000-05-19
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT

Mon Dec 20 14:53:53 2004

us-10-722-733-1_copy_7_36.rapb

Page 3

ORGANISM: Unknown Organism
FEATURE:
OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
OTHER INFORMATION: peptide
US-09-982-978-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 7
US-09-953-021B-4
Sequence 4, Application US/09953021B
Patent No. US20020147131A1
GENERAL INFORMATION:
APPLICANT: Coolidge, Thomas L.
TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of Isch
FILE REFERENCE: P03660056
CURRENT APPLICATION NUMBER: US/09/953,021B
CURRENT FILING DATE: 2001-09-11
PRIOR APPLICATION NUMBER: 09/302,596
PRIOR FILING DATE: 1998-04-30
NUMBER OF SEQ ID NOS: 13
SOFTWARE: Patent In Ver. 2.0
SEQ ID NO: 4
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
US-09-953-021B-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 8
US-09-834-229A-5
Sequence 5, Application US/09834229A
Publication No. US2003022823A1
GENERAL INFORMATION:
APPLICANT: Efeddic, Sued
TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
FILE REFERENCE: X-10822A
CURRENT APPLICATION NUMBER: US/09/834,229A
CURRENT FILING DATE: 2001-04-12
PRIOR APPLICATION NUMBER: US 08/915,918
PRIOR FILING DATE: 1997-08-21
PRIOR APPLICATION NUMBER: US 06/024,980
PRIOR FILING DATE: 1996-08-30
NUMBER OF SEQ ID NOS: 6
SOFTWARE: Patent In version 3.1
SEQ ID NO: 5
LENGTH: 30
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: synthetic construct
US-09-834-229A-5

Query Match 100.0%; Score 155; DB 10; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 9
US-09-997-792-10
Sequence 10, Application US/0997792
Publication No. US20030045464A1
GENERAL INFORMATION:
APPLICANT: Hermeling, Ronald
APPLICANT: Hoffmann, James
APPLICANT: Narasimhan, Chakravarthy
TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
FILE REFERENCE: X-10242
CURRENT APPLICATION NUMBER: US/09/997,792
CURRENT FILING DATE: 2001-11-30
NUMBER OF SEQ ID NOS: 29
SOFTWARE: Patent In version 3.0
SEQ ID NO: 10
LENGTH: 30
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: synthetic construct
US-09-997-792-10

Query Match 100.0%; Score 155; DB 10; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 10
US-10-072-540A-4
Sequence 4, Application US/10072540A
Publication No. US20020123466A1
GENERAL INFORMATION:
APPLICANT: Hoffmann, James
TITLE OF INVENTION: GLP-1 FORMULATIONS
FILE REFERENCE: X-11368A
CURRENT APPLICATION NUMBER: US/10/072,540A
CURRENT FILING DATE: 2002-02-08
PRIOR APPLICATION NUMBER: US 60/067,600
PRIOR FILING DATE: 1997-12-05
NUMBER OF SEQ ID NOS: 5
SOFTWARE: Patent In version 3.1
SEQ ID NO: 4
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: MOD RES
LOCATION: (30)..(30)
OTHER INFORMATION: AMIDATION
US-10-072-540A-4

Query Match 100.0%; Score 155; DB 13; Length 30;
Best Local Similarity 100.0%; Pred. No. 2.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVKGR 30

RESULT 11
US-10-125-255-1
Sequence 1, Application US/10125255

Publication No. US20020165342A1
GENERAL INFORMATION:
APPLICANT: Galloway, John A
TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Methods
FILE REFERENCE: X-9332E
CURRENT APPLICATION NUMBER: US/10/125,255
CURRENT FILING DATE: 2002-04-17
PRIOR APPLICATION NUMBER: 09/573,809
PRIOR FILING DATE: 2000-05-18
NUMBER OF SEQ ID NOS: 1
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: MOD RES
LOCATION: (30)..(30)
OTHER INFORMATION: The arginine residue at position 30 is modified so as to replace
US-10-125-255-1
Query Match
Best Local Similarity 100.0%; Score 155; DB 13; Length 30;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Cy 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
Db 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
RESULT 12
US-10-091-258-4
Sequence 4, Application US/10091258
Publication No. US20030073626A1
GENERAL INFORMATION:
APPLICANT: Hathaway, David R
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING PERIPHERAL VASCULAR DISEASE
FILE REFERENCE: RGN-2
CURRENT APPLICATION NUMBER: US/10/091,258
CURRENT FILING DATE: 2002-03-05
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn version 3.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: mammalian
US-10-091-258-4
Query Match
Best Local Similarity 100.0%; Score 155; DB 14; Length 30;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Cy 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
Db 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
RESULT 13
US-10-055-259-4
Sequence 4, Application US/10055259
Publication No. US20030091507A1
GENERAL INFORMATION:
APPLICANT: Holst, Jens J
TITLE OF INVENTION: GLP-1 AS A DIAGNOSTIC TEST TO DETERMINE Beta-CELL FUNCTION AND TH
FILE REFERENCE: P03987061
CURRENT APPLICATION NUMBER: US/10/055,259
CURRENT FILING DATE: 2002-06-21
NUMBER OF SEQ ID NOS: 13

SOFTWARE: PatentIn version 3.1
SEQ ID NO 4
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
US-10-055-259-4
Query Match
Best Local Similarity 100.0%; Score 155; DB 14; Length 30;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Cy 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
Db 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
RESULT 14
US-10-265-345A-2
Sequence 2, Application US/10265345A
Publication No. US20030124669A1
GENERAL INFORMATION:
APPLICANT: Pan, Clark
APPLICANT: Whelan, James
APPLICANT: Clairmont, Kevin B.
TITLE OF INVENTION: Peptides Acting as Both GLP-1 Receptor Agonists and Glucagon
FILE REFERENCE: MSB-7298
CURRENT APPLICATION NUMBER: US/10/265,345A
CURRENT FILING DATE: 2003-01-31
PRIOR APPLICATION NUMBER: US 60/327,730
PRIOR FILING DATE: 2001-10-05
NUMBER OF SEQ ID NOS: 34
SOFTWARE: PatentIn version 3.2
SEQ ID NO 2
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
US-10-265-345A-2
Query Match
Best Local Similarity 100.0%; Score 155; DB 14; Length 30;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Cy 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
Db 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
RESULT 15
US-10-097-230-3
Sequence 3, Application US/10097230
Publication No. US20030186436A1
GENERAL INFORMATION:
APPLICANT: Perfetti, Riccardo
APPLICANT: Hui, Hongxiang
TITLE OF INVENTION: Glucose-Dependent Insulin-Secreting Cells Transfected with a Nucle
FILE REFERENCE: B1476-0249704
CURRENT APPLICATION NUMBER: US/10/097,230
CURRENT FILING DATE: 2002-03-12
NUMBER OF SEQ ID NOS: 9
SOFTWARE: PatentIn version 3.1
SEQ ID NO 3
LENGTH: 30
TYPE: PRT
ORGANISM: Homo sapiens
US-10-097-230-3
Query Match
Best Local Similarity 100.0%; Score 155; DB 14; Length 30;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Cy 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30

Mon Dec 20 14:53:53 2004

us-10-722-733-1_copy_7_36.rapb

Page 5

Db 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30

Search completed: December 20, 2004, 09:18:21
Job time: 1038 secs

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GenCore version 5.1.6
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CM protein - protein search, using sw model

Run on: December 20, 2004, 08:54:47 ; Search time 38 Seconds

(without alignments)
75,961 Million cell updates/sec

Title: US-10-722-733-1_COPY_7_36

Perfect score: 155

Sequence: 1 HAEGFTSDVSSYLEGQAAKEFIMLVKGR 30

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

1: p1r1:
2: p1r2:
3: p1r3:
4: p1r4:

Prod. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	155	100.0	158	1	GCPC
2	155	100.0	180	1	GCBO
3	155	100.0	180	1	GCHY
4	155	100.0	180	1	GCHP
5	155	100.0	180	1	GCHU
6	155	100.0	180	1	GCHT
7	155	100.0	180	1	GCHTDT
8	155	100.0	180	2	AS7294
9	143	92.3	151	1	GCHC
10	143	92.3	206	2	IS1301
11	129	83.2	101	1	GCHB
12	126	81.3	30	2	C61125
13	126	81.3	30	2	B61125
14	120	77.4	122	2	GCAPE2
15	118	76.1	66	2	IS1093
16	118	76.1	178	2	IS1058
17	117	75.5	63	1	GCHDC
18	116	74.8	72	1	GCHCA
19	113	72.9	60	1	GCHNC
20	113	72.9	178	2	IS1057
21	111	71.6	30	2	S44473
22	103	66.5	87	1	GCHRS
23	97	62.6	29	2	S07211
24	96	61.9	31	2	S44472
25	96	61.9	124	1	GCHP
26	95	61.3	29	1	GCHP
27	94	60.6	31	2	S44471
28	93	60.0	29	1	GCHN
29	90	58.1	29	1	GCHPV

ALIGNMENTS

30	90	58.1	29	2	A91740	glucagon - turkey
31	90	58.1	29	2	C39258	glucagon - common
32	90	58.1	29	2	A91742	glucagon - Arabian
33	90	58.1	29	2	A91741	glucagon - rabbit
34	90	58.1	69	1	GCHD69	glucagon-69 - dog
35	88	56.8	29	1	A61583	glucagon - ostrich
36	88	56.8	29	1	GCHD	glucagon - duck
37	88	56.8	29	1	GCHTS	glucagon - slider
38	88	56.8	29	2	C60840	glucagon I - Europ
39	87	56.1	29	1	GCHB	glucagon - Chinchi
40	87	56.1	39	1	HWG4G	exendin-4 - Gila m
41	86	55.5	29	1	GCHLE	glucagon - Europea
42	86	55.5	29	2	A61135	glucagon - biseye
43	85	54.8	39	1	HWG4Z	exendin-3 - Mexica
44	85	54.8	29	2	S39018	glucagon - bowlin
45	79	51.0	36	1	GCHI	glucagon-36 - spot

RESULT 1

GCPC
glucagon precursor - pig (fragment)
N:Alternate names: glicentin; oxyntomodulin
N:Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucagon-6;
C:Species: Sus scrofa domestica (domestic pig)
C>Date: 17-Dec-1982 #sequence revision 31-Mar-1993 #text_change 20-Mar-1998
C/Accession: A01540; A60312; A91781; B32614; A28064
R/Thim, L.; Moody, A.O.
Regul. Pept. 2, 139-150, 1981
A>Title: The primary structure of porcine glicentin (proglucagon).
A/Reference number: A94233; MUID:81248172; PMID:6894800
A/Accession: A01540
A/Molecule type: protein
A/Residues: 1-69 <RH1>
R/Thim, L.; Moody, A.O.
Regul. Pept. Suppl. 2, S33, 1983
A>Title: Primary structure of a possible porcine proglucagon fragment.
A/Reference number: A60312
A/Accession: A60312
A/Molecule type: protein
A/Residues: 1-30 <RH2>
A/Note: this peptide is co-secreted with glucagon from the pancreas
R/Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A>Title: The amino acid sequence of glucagon. V. Location of amide groups, acid degradat:
A/Reference number: A91781
A/Accession: A91781
A/Molecule type: protein
A/Residues: 33-61 <BRO>
R/Orekov, C.; Barsani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A>Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestine.
A/Reference number: A92732; MUID:85327238; PMID:2753890
A/Accession: B32614
A/Molecule type: protein
A/Residues: 78-107 <ORS>
J. Biol. Chem. 263, 8621-8624, 1988
A>Title: Naturally occurring products of proglucagon 111-160 in the porcine and human sm
A/Reference number: A28064; MUID:88243712; PMID:3379036
A/Accession: A28064
A/Molecule type: protein
A/Residues: 111-158 <BUH>
C/Comment: X's represent missing amino acids, mostly basic, that are predicted to exist
C/Suprafamily: glucagon
C/Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; intest
F/1-69/Product: glucagon-69 #status experimental <G69>
F/1-30/Region: glicentin-related peptide #status experimental
F/33-69/Product: glucagon-37 #status predicted <G37>
F/33-61/Product: glucagon #status experimental <G3>
F/78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F:126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F:107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 6.2e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 107

RESULT 2

GCHU

glucagon precursor - bovine

N:Contains: glucicntin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Bos primigenius taurus (cattle)

C>Date: 14-Nov-1983 #sequence revision 14-Nov-1983 #text_change 20-Mar-1998

C/Accession: A93970; A92081; A01538

C/Species: L.C.; Frazer, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.

C/Date: Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983

A>Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptides.

A/Reference number: A93970; PMID:8339996; PMID:6577439

A/Accession: A93970

A/Molecule type: mRNA

A/Residues: 1-180 <LOP>

A/Cross-references: EMBL:K00107

R/Biommer, W.M.; Boucher, M.E.; Koffenberger Jr., J.E.

C/Title: Chem. 246, 2822-2827, 1971

A/Title: Amino acid sequence of bovine glucagon.

A/Reference number: A92081; PMID:71166445; PMID:5102927

A/Accession: A92081

A/Molecule type: protein

A/Residues: 53-81 <BRO>

A/Superfamily: glucagon

C/Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-50/Product: proglucagon #status predicted <PGC>

F:51-81/Product: glucicntin-related peptide #status predicted

F:82-127/Product: glucagon-like peptide 1 #status experimental <GL1>

F:128-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 3

GCHU

glucagon precursor - golden hamster

N:Contains: glucicntin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like

C:Species: Mesocricetus auratus (golden hamster)

C/Date: 13-Jun-1983 #sequence revision 13-Jun-1983 #text_change 20-Mar-1998

C/Accession: A01539

A/Title: Hamster preproglucagon contains the sequence of glucagon and two related pepid

A/Reference number: A01539; PMID:83165563; PMID:68355407

A/Accession: A01539

A/Molecule type: mRNA

A/Residues: 1-180 <BEL>

A/Cross-references: EMBL:J00055

C/Superfamily: glucagon

C/Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-50/Product: proglucagon #status predicted <PGC>

F:51-81/Product: glucagon-like peptide 1 #status predicted <GL1>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

F:53-81/Product: glucagon #status predicted <GCN>
F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 4

GCHU

glucagon precursor - guinea pig

N:Alternate names: oxyntomodulin

N:Contains: glucicntin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucagon-

C:Species: Cavia porcellus (guinea pig)

C/Date: 30-Sep-1987 #sequence revision 31-Dec-1992 #text_change 09-Jul-2004

C/Accession: A24856; A23849; A60323

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-50/Product: proglucagon #status predicted <PGC>

F:51-81/Product: glucicntin-related peptide #status predicted

F:82-127/Product: glucagon-like peptide 1 #status predicted <GL1>

F:128-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

glucagon precursor [validated] - human
N:Contains: glucicntin-related polypeptide (GRPP); glucagon; glucagon-like pep

C:Species: Homo sapiens (man)

C/Date: 24-Apr-1984 #sequence revision 31-Mar-1993 #text_change 09-Jul-2004

C/Accession: A24377; A44197; A30875; A32614; A01541; S23309

RESULT 5

GCHU

glucagon precursor [validated] - human

N:Contains: glucicntin-related polypeptide (GRPP); glucagon; glucagon-like pep

C:Species: Homo sapiens (man)

C/Date: 24-Apr-1984 #sequence revision 31-Mar-1993 #text_change 09-Jul-2004

C/Accession: A24377; A44197; A30875; A32614; A01541; S23309

R.White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A>Title: Structure of the human glucagon gene.
A:Reference number: A24377; MUID:66259053; PMID:3725587
A:Accession: A24377
A:Molecule type: DNA
A:Residues: 1-180 <HE1>
A:Cross-references: UNIPROT:P01275; GB:X03991
R:Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983
A>Title: Exon duplication and divergence in the human preproglucagon gene.
A:Reference number: A44197; MUID:89272477; PMID:6877358
A:Accession: A44197
A:Molecule type: DNA
A:Residues: 1-179 <BE1>
A:Cross-references: GB:V01515; NID:G31777; PID:CAA24759.1; PID:G31778
R:Drucker, D.U.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988
A>Title: Glucagon gene expression in vertebrate brain.
A:Reference number: A30875; MUID:88330860; PMID:2901414
A:Accession: A30875
A:Molecule type: mRNA
A:Residues: 1-180 <DR1>
A:Cross-references: GB:J04040; NID:G183269; PID:AAA52567.1; PID:G183270
R:Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A>Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestine
A:Reference number: A92732; MUID:89327238; PMID:2753890
A:Accession: A92732
A:Molecule type: protein
A:Residues: 98-127 <ORS>
R:Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A>Title: The amino acid sequence of human glucagon.
A:Reference number: A91373
A:Accession: A91373
A:Molecule type: protein
A:Residues: 53-81 <THO>
R:Tangler, A.; Takamoto, K.; Kamo, M.; Iwade, H.
Eur. J. Biochem. 206, 691-696, 1992
A>Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A:Reference number: S23188; MUID:92298956; PMID:1606956
A:Accession: S23309
A:Molecule type: protein
A:Residues: 53-81 <TSU>
A:Comment: In pancreatic alpha-cells, proglucagon is processed to glucin-th-related polypeptide L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-dulin.
C:Genetics:
A:Gene: GDB:GCG
A:Cross-references: GDB:119265; OMIM:138030
A:Map position: 2q36-2q37
A:Introns: 31/2; 85/2; 131/2; 179/2
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; interest
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status experimental <PGC>
F:21-89/Product: glucin-th #status experimental <GLN>
F:21-50/Product: glucin-th-related polypeptide #status predicted <GRP>
F:53-81/Product: oxyntomodulin #status experimental <ONX>
F:92-178/Product: major proglucagon fragment #status experimental <MPF>
F:92-127/Product: truncated glucagon-like peptide 1 #status experimental <GL1>
F:98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Db 98 HAEGTSDVSYLEGQAKFIAMLVKGR 127
RESULT 6
GCRU
glucagon precursor - rat
N:Contains: glucin-th-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C:Species: Rattus norvegicus (Norway rat)
C>Date: 30-Sep-1987 #sequence revision 30-Sep-1997 #text_change 09-Jul-2004
C:Accession: A22655; A25190; A44198
R:Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A>Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A:Reference number: A22655; MUID:85054853; PMID:6094539
A:Accession: A22655
A:Molecule type: DNA
A:Residues: 1-180 <HE1>
A:Cross-references: UNIPROT:P06883; EMBL:X02809
A>Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5;
R:Mojsos, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A>Title: Preproglucagon gene expression in pancreas and intestine diversifies at the level
A:Reference number: A25190; MUID:86304324; PMID:3528148
A:Accession: A25190
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-180 <MOJ>
R:Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A>Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid se
A:Reference number: A44198; MUID:85051023; PMID:6548696
A:Accession: A44198
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-180 <HE2>
A:Cross-references: GB:X02809; GB:X02810; GB:X02811; GB:X02812
C:Genetics:
A:Introns: 31/2; 85/2; 131/2; 179/2
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: glucin-th-related peptide #status predicted
F:53-81/Product: glucagon #status predicted <GN>
F:92-178/Product: major proglucagon fragment #status predicted <GL1>
F:98-127/Product: truncated glucagon-like peptide 1 #status predicted <GL2>
F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
1 HAEGTSDVSYLEGQAKFIAMLVKGR 30
|||||
Db 98 HAEGTSDVSYLEGQAKFIAMLVKGR 127
|||||
RESULT 7
GCRU
glucagon precursor - degu
N:Contains: glucin-th-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C:Species: Octodon degus (degu)
C>Date: 31-Mar-1993 #sequence revision 31-Mar-1993 #text_change 09-Jul-2004
C:Accession: C36118
R:Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A>Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A:Accession: C36118
A:Molecule type: mRNA
A:Residues: 1-180 <NIS>
A:Cross-references: UNIPROT:P22690; GB:M57668; NID:G202467; PID:AAA40588.1; PID:G202468
C:Superfamily: glucagon

C/Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancreas
F1-20/Domin: signal sequence #status predicted <SIG>
F21-80/Product: glucagon #status predicted <PGC>
F23-50/Region: glucagon-related peptide #status predicted
F33-81/Product: glucagon #status predicted <GCN>
F38-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F46-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F4127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 8

A57294
Glucagon precursor - mouse
C/Species: Mus musculus (house mouse)
C/Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 09-Jul-2004
C/Accession: A57294; S49903
R/Solterberg, M.E.; Elbertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A>Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A/Reference number: A57294; MUID:95247722; PMID:7730317
A/Accession: A57294
A/Status: preliminary
A/Molecule type: mRNA
A/Residues: 1-180 <ROT>
A/Cross-references: UNIPROT:P55095; EMBL:Z46845; NID:G599860; PIDN:CAA6902.1; PID:G5988
A/Superfamily: glucagon
C/Keywords: carbohydrate metabolism; duplication; hormone; pancreas

Query Match 100.0%; Score 155; DB 2; Length 180;
Best Local Similarity 100.0%; Pred. No. 7.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 9

QEGH
Glucagon precursor - chicken
N/Contents: glucagon; glucagon-like peptide 1
C/Species: Gallus gallus (chicken)
C/Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 09-Jul-2004
C/Accession: S09992; A92189; A60836; A01542
R/Hasegawa, S.; Terazono, K.; Natta, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
GBH5, Lett. 264, 117-120, 1990
A>Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken F
A/Reference number: S09992; MUID:90249492; PMID:2338135
A/Accession: S09992
A/Molecule type: mRNA

A/Residues: 1-151 <HAS>
A/Cross-references: UNIPROT:P01277; EMBL:Y07539; NID:G63749; PIDN:CAA68827.1; PID:G63750
R/Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A>Title: Chicken glucagon. Isolation and amino acid sequence studies.
A/Reference number: A92189; MUID:76069271; PMID:1194290
A/Accession: A92189
A/Molecule type: protein

A/Residues: 55-83 <POU>
R/Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A>Title: Chicken glucagon: sequence and potency in receptor assay.
A/Reference number: A60836; MUID:88113418; PMID:2828209
A/Accession: A60836
A/Molecule type: protein

A/Residues: 55-83 <HUA>
C/Superfamily: glucagon
C/Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancreas
F1-22/Domin: signal sequence #status predicted <SIG>
F23-151/Product: proglucagon #status predicted <PGC>
F35-83/Product: glucagon #status experimental <GCN>
F118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F147/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 92.3%; Score 143; DB 1; Length 151;
Best Local Similarity 86.7%; Pred. No. 3.2e-13;
Matches 26; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 118 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 147

RESULT 10

151301
Proglucagon - chicken
C/Species: Gallus gallus (chicken)
C/Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 09-Jul-2004
C/Accession: 151301
R/Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A>Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcripts
A/Reference number: A55895; MUID:95295739; PMID:776676
A/Accession: 151301
A/Status: preliminary; translated from GB/EMBL/DDBJ
A/Molecule type: mRNA
A/Residues: 1-206 <JRM>
A/Cross-references: UNIPROT:P01277; GB:S78477; NID:G999386; PIDN:AAB34506.1; PID:G999386
A/Superfamily: glucagon
C/Keywords: duplication

Query Match 92.3%; Score 143; DB 2; Length 206;
Best Local Similarity 86.7%; Pred. No. 4.4e-13;
Matches 26; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 118 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 147

RESULT 11

GCFGB
Glucagon precursor - bullfrog (fragments)
N/Alternate names: oxyntomodulin
C/Species: Rana catesbeiana (bullfrog)
C/Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C/Accession: B28091; C28091; D28091
R/Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawlitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A>Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesbeiana)
A/Reference number: A92730; MUID:88257102; PMID:3260236
A/Accession: B28091
A/Molecule type: protein

A/Residues: 1-36 <PO2>
A/Accession: C28091
A/Molecule type: protein
A/Residues: 37-68 <POU>
A/Accession: D28091
A/Molecule type: protein
A/Residues: 69-101 <PO3>
C/Superfamily: glucagon
C/Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F1-29/Product: glucagon #status predicted <GCN>
F37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F69-101/Product: glucagon-like peptide 2 #status experimental <GL2>

Query Match 83.2%; Score 129; DB 1; Length 101;
 Best Local Similarity 76.7%; Pred. No. 2.2e-11;
 Matches 23; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
 ||:|||||:|||||:|||||:|||||:|||||:
 DB 37 HADGFTSDVSSYLEKAAKEFVWLKGR 66

RESULT 12

Glucagon-like peptide - European eel
 C/Species: Anguilla anguilla (European eel)
 C/Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 09-Jul-2004
 C/Accession: C61125
 R/Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
 Gen. Comp. Endocrinol. 82, 23-32, 1991
 A/Title: The primary structure of glucagon-like peptide but not insulin has been consery
 A/Reference number: A61125; PMID:91340068; PMID:1874385
 A/Accession: C61125
 A/Molecule type: protein
 A/Residues: 1-30 <CON>
 A/Cross-references: UNIPROT:P41521
 C/Superfamily: glucagon
 C/Keywords: amidated carboxyl end; duplication
 F/1-30/Product: glucagon-like peptide #status experimental <GLP>
 F/30/Modified site: amidated carboxyl end (Arg) #status experimental

Query Match 81.3%; Score 126; DB 2; Length 30;
 Best Local Similarity 76.7%; Pred. No. 1.6e-11;
 Matches 23; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
 ||:|||||:|||||:|||||:|||||:|||||:
 DB 1 HADGFTSDVSSYLDQAAKEFVWLKGR 30

RESULT 13

Glucagon-like peptide - American eel
 C/Species: Anguilla rostrata (American eel)
 C/Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 09-Jul-2004
 C/Accession: B61125
 R/Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
 Gen. Comp. Endocrinol. 82, 23-32, 1991
 A/Title: The primary structure of glucagon-like peptide but not insulin has been consery
 A/Reference number: A61125; PMID:91340068; PMID:1874385
 A/Accession: B61125
 A/Molecule type: protein
 A/Residues: 1-30 <CON>
 A/Cross-references: UNIPROT:P41521
 C/Superfamily: glucagon
 C/Keywords: amidated carboxyl end; duplication
 F/1-30/Product: glucagon-like peptide #status experimental <GLP>
 F/30/Modified site: amidated carboxyl end (Arg) #status predicted

Query Match 81.3%; Score 126; DB 2; Length 30;
 Best Local Similarity 76.7%; Pred. No. 1.6e-11;
 Matches 23; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
 ||:|||||:|||||:|||||:|||||:|||||:
 DB 1 HADGFTSDVSSYLDQAAKEFVWLKGR 30

RESULT 14

Glucagon 2 precursor - American goosefish
 N/Contains: glucagon; glucagon-like peptide 1
 C/Species: Lophius americanus (American goosefish)
 C/Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 09-Jul-2004
 C/Accession: A05150
 R/Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.

J. Biol. Chem. 258, 3280-3284, 1983
 A/Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid seq
 A/Reference number: A05150; PMID:83135785; PMID:6338015
 A/Accession: A05150
 A/Molecule type: mRNA
 A/Residues: 1-122 <LUN>
 A/Cross-references: UNIPROT:P04092; GB:J00933; NID:964021; PIDN:CAA23905.1; PID:964022
 C/Superfamily: glucagon
 C/Keywords: carbohydrate metabolism; duplication; hormone; pancreas
 F/1-21/Domain: signal sequence #status predicted <SIG>
 F/22-122/Product: proglucagon 2 #status predicted <PGC2>
 F/52-80/Product: glucagon #status predicted <GCN>
 F/89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

Query Match 77.4%; Score 120; DB 1; Length 122;
 Best Local Similarity 70.0%; Pred. No. 5.3e-10;
 Matches 21; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
 ||:|||||:|||||:|||||:|||||:|||||:
 DB 89 HADGFTSDVSSYLDQAAKEFVWLKGR 118

RESULT 15

glucagon - chinook salmon (fragment)
 C/Species: Oncorhynchus tshawytscha (chinook salmon)
 C/Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 09-Jul-2004
 C/Accession: I51093
 R/Irwin, D.M.; Wong, J.

Mol. Endocrinol. 9, 267-277, 1995
 A/Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcripts
 A/Reference number: A55895; PMID:95295739; PMID:776976
 C/Accession: I51093
 A/Status: preliminary; translated from GB/EMBL/DBJ
 A/Molecule type: mRNA
 A/Residues: 1-66 <IRW>
 A/Cross-references: UNIPROT:Q91409; EMBL:U19920; NID:9736366; PIDN:AAC59670.1; PID:973636
 C/Superfamily: glucagon
 C/Keywords: duplication

Query Match 76.1%; Score 118; DB 2; Length 66;
 Best Local Similarity 66.7%; Pred. No. 5.3e-10;
 Matches 20; Conservative 7; Mismatches 3; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
 ||:|||||:|||||:|||||:|||||:|||||:
 DB 33 HADGFTSDVSSYLDQAAKEFVWLKGR 62

Search completed: December 20, 2004, 08:58:49
 Job time : 39 secs

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GenCore version 5.1.6
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model
Run on: December 20, 2004, 08:54:47 ; Search time 189 Seconds
(without alignments)
91.329 Million cell updates/sec

Title: US-10-722-733-1_COPY_7_36
Perfect score: 155
Sequence: 1 HAEGFTSDVSYLEGQAKKEFLAVLKGR 30

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1825181 segs, 575374646 residues

Total number of hits satisfying chosen parameters: 1825181

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Uniprot 02: *
1: uniprot_sprot: *
2: uniprot_trembl: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	155	100.0	45	2 O6PPF4	O6PPF4 capra hircu
2	155	100.0	45	2 AAT00451	AAT00451 capra hircu
3	155	100.0	176	2 Q6RYB8	Q6RYB8 ovib aries
4	155	100.0	180	1 GLUC_BOVIN	P01272 b glucagon
5	155	100.0	180	1 GLUC_CANPA	P29794 c glucagon
6	155	100.0	180	1 GLUC_CANPA	P05110 c glucagon
7	155	100.0	180	1 GLUC_HUMAN	P01275 h glucagon
8	155	100.0	180	1 GLUC_MESAU	P01273 m glucagon
9	155	100.0	180	1 GLUC_MOUSE	P50095 m glucagon
10	155	100.0	180	1 GLUC_OCTDB	P22890 o glucagon
11	155	100.0	180	1 GLUC_PIG	P01274 s glucagon
12	155	100.0	180	1 GLUC_RAT	P06883 r glucagon
13	143	92.3	124	2 O6RYB1	O6RYB1 agkistodion
14	143	92.3	124	2 AAS57656	AAS57656 agkistodion
15	143	92.3	206	1 GLUC_CHICK	P01277 g glucagon
16	138	86.0	80	2 O6TUF8	O6TUF8 phodopus su
17	137	88.4	145	2 O6RYB8	O6RYB8 neoceratodu
18	137	88.4	145	2 AAS57652	AAS57652 neoceratodu
19	137	88.4	204	1 GLUC_HELUS	O12956 h glucagon
20	134	86.5	153	2 O6RYB6	O6RYB6 protoplerus
21	134	86.5	153	2 AAS57651	AAS57651 protoplerus
22	129	83.2	103	1 GLUC_RANCA	P15438 rana caatesh
23	129	83.2	220	2 O6RYB9	O6RYB9 hoplobatrach
24	126	81.3	30	1 GLUC_AMGAN	P41521 anguilla an
25	125	80.6	149	2 O6RYB2	O6RYB2 buto marini
26	125	80.6	149	2 AAS57655	AAS57655 buto marini
27	125	80.6	266	1 GLUI_XENLA	O41143 xenopus lae
28	125	80.6	266	1 O6DIZ4	O6DIZ4 xenopus tro
29	121	78.1	120	2 O6RYB7	O6RYB7 icitalurus p
30	121	78.1	120	2 AAS57650	AAS57650 icitalurus p
31	120	77.4	122	1 GLU2_LOPAN	P04092 lophius ame

32	120	77.4	123	2 O6RYA9	O6RYA9 seabastes ca
33	120	77.4	123	2 AAS57647	AAS57647 seabastes
34	120	77.4	123	2 AAS57658	AAS57658 seabastes
35	120	77.4	219	1 GLU2_XENLA	O41144 xenopus lae
36	120	77.4	219	2 O788W6	AAB54234 xenopus l
37	118	76.1	66	2 O788W6	O788W6 oncorhynch
38	118	76.1	72	2 Q91409	Q91409 oncorhynch
39	118	76.1	178	1 GLUI_ONCMY	Q91971 oncorhynch
40	117	75.5	122	2 O6RYB8	O6RYB8 icitalurus p
41	117	75.5	122	2 AAS57649	AAS57649 icitalurus
42	117	75.5	173	2 O6RYB9	O6RYB9 icitalurus p
43	117	75.5	173	2 AAS57648	AAS57648 icitalurus
44	116	74.8	71	1 GLUC_ICTPU	P04093 icitalurus p
45	116	74.8	78	1 GLUC_LEPSP	P05566 lepisosteus

ALIGNMENTS

```

RESULT 1
ID O6PPF4 PRELIMINARY; PRT; 45 AA.
AC O6PPF4;
DT 05-JUL-2004 (TREMBLrel. 27, Created)
DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TREMBLrel. 27, Last annotation update)
DE Glucagon (Fragment).
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Capra.
OX NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RA Ballester M., Castelle A., Ibanez E., Sanchez A., Folch J.M.;
RL Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY588290; AAT00451.1; -
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; Hormone 2; 1.
DR SMART; SM00070; GLUCA_1.
DR PROSITE; PS00260; GLUCAGON; UNKNOWN_1.
FT NON TER 1 1
FT NON TER 45 45
SQ SEQUENCE 45 AA; 5179 MW; B538A926E9447F80 CRC64;

Query Match 100.0%; Score 155; DB 2; Length 45;
Best Local Similarity 100.0%; Pred. No. 2.8e-14;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Cy 1 HAEGFTSDVSYLEGQAKKEFLAVLKGR 30
Db 13 HAEGFTSDVSYLEGQAKKEFLAVLKGR 42

RESULT 2
ID AAT00451 PRELIMINARY; PRT; 45 AA.
AC AAT00451;
DT 10-MAY-2004 (TREMBLrel. 27, Created)
DT 10-MAY-2004 (TREMBLrel. 27, Last sequence update)
DT 10-MAY-2004 (TREMBLrel. 27, Last annotation update)
DE Glucagon (Fragment).
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Capra.
OX NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RA Ballester M., Castelle A., Ibanez E., Sanchez A., Folch J.M.;
RL "A rapid and accurate real-time quantitative PCR detection system for
determining transgene copy number in transgenic animals.";
Submitted (APR-2004) to the EMBL/GenBank/DBJ databases.

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DR EMBL: AY588290; RAT00451.1; -
RT NON TER 1
ET NON TER 45
SQ SEQUENCE 45 AA; 5179 MM; B538A926E9447F80 CRC64;

Query Match 100.0%; Score 155; DB 2; Length 45;
Best Local Similarity 100.0%; Pred. No. 2,86-14;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
13 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 42

RESULT 3

DB 08M25 PRELIMINARY; PRT; 176 AA.

AC 08M25;
BT 01-OCT-2002 (TREMBLrel. 22, Created)
DI 01-OCT-2002 (TREMBLrel. 22, Last sequence update)
DE 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE Preproglucagon (Fragment).
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Ovis.
OX NCBI_TaxID=9940;

RA 11
RB SEQUENCE FROM N.A.

RC TISSUE=pancreas;
RA Limesand S.W., Hay W.W. Jr.;
RL Submitted (JUL-2002) to the EMBL/GenBank/DBJ databases.

DR EMBL: AF529185; NAM94409.1; -
DR GO: GO:0005576; C:extracellular; IEA.
DR GO: GO:0005179; F:hormone activity; IEA.
DR InterPro: IPR00532; Glucagon.
DR Pfam: PF00123; Hormone 2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 3.

FA NON TER 176
SC SEQUENCE 176 AA; 20335 MM; 131740395D6CEB2B3 CRC64;

Query Match 100.0%; Score 155; DB 2; Length 176;
Best Local Similarity 100.0%; Pred. No. 1e-13;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 4

DB 08M25 PRELIMINARY; PRT; 180 AA.

AC 08M25;
BT 21-JUL-1986 (Rel. 01, Created)
DI 13-AUG-1987 (Rel. 05, Last sequence update)
DI 01-OCT-2004 (Rel. 45, Last annotation update)
DE Glucagon precursor (Contains: Glucocentrin; Glucocentrin-related polypeptide 1
DE GRRP); Oxyntomodulin (OXY) (OXM); Glucagon; Glucagon-like peptide 1
DE GGP-1; Glucagon-like peptide 1(7-37) (GLP-1(7-37)); Glucagon-like
DE peptide 1(7-35) (GLP-1(7-35)); Glucagon-like peptide 2 (GLP-2);
SN Name=GGG;
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovinae; Bos.
OX NCBI_TaxID=9913;

RA 11
RB SEQUENCE FROM N.A.
RL MEDLINE=83293996; PubMed=6577439;
RA Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;

RT "Mammalian pancreatic preproglucagon contains three glucagon-related
RT peptides.";
RT Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).

RP SEQUENCE OF 53-81.
RX MEDLINE=7116445; PubMed=5102927;
RA Brower W.W., Boucher M.E., Koffender J.E. Jr.;
RT "Amino acid sequence of bovine glucagon.";
RL J. Biol. Chem. 246:2822-2827(1971).

RP REVIEW.
RX PubMed=12554744;

RA Drucker D.J.;
RT "Glucagon-like peptides: regulators of cell proliferation,
RT differentiation, and apoptosis.";
RL Mol. Endocrinol. 17:161-171(2003).

RP REVIEW.
RX PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;

RA Zhang G., Zhang B.B.;
RT "Glucagon and regulation of glucose metabolism.";
RL Am. J. Physiol. 284:E671-E678(2003).

RP REVIEW.
RX PubMed=10322410;

RA Drucker D.J.;
RT "Glucagon-like peptide 2.";
RL Trends Endocrinol. Metab. 10:153-156(1999).

RP REVIEW.
RX PubMed=10605628;

RA Kieffer T.J., Habener J.F.;
RT "The glucagon-like peptides.";
RL Endocr. Rev. 20:876-913(1999).

RP STRUCTURE BY NMR OF 53-81.
RX MEDLINE=7116445; PubMed=6631957;

RA Braun W., Wüder G., Lee K.H., Wüthrich R.;
RT "Conformation of glucagon in a lipid-water interphase by 1H nuclear
RT magnetic resonance.";
RL J. Mol. Biol. 169:921-948(1983).

CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
CC homeostasis. Regulates blood glucose by increasing gluconeogenesis
CC and decreasing glycogenolysis. A counterregulatory hormone of insulin,
CC raises plasma glucose levels in response to insulin-induced
CC hypoglycemia (By similarity).

CC -1- FUNCTION: GLP-1 is a potent stimulator of glucose-dependent
CC insulin release. Play important roles on gastric motility and the
CC suppression of plasma glucagon levels. May be involved in the
CC suppression of satiety and stimulation of glucose disposal in
CC peripheral tissues, independent of the actions of insulin. Have
CC growth-promoting activities on intestinal epithelium. May also
CC regulate the hypothalamic pituitary axis (HPA) via effects on LH,
CC TSH, CRH, oxytocin, and vasopressin secretion. Increases islet
CC mass through stimulation of islet neogenesis and pancreatic beta
CC cell proliferation (By similarity).

CC -1- FUNCTION: GLP-2 stimulates intestinal growth and up-regulates
CC villus height in the small intestine, concomitant with increased
CC crypt cell proliferation and decreased enterocyte apoptosis. The
CC gastrointestinal tract, from the stomach to the colon is the
CC principal target for GLP-2 action. Plays a key role in nutrient
CC homeostasis, enhancing nutrient assimilation through enhanced
CC gastrointestinal function, as well as increasing nutrient
CC disposal. Stimulates intestinal glucose transport and decreases
CC mucosal permeability (By similarity).

CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake (By
CC similarity).

CC -1- FUNCTION: Glucocentrin may modulate gastric acid secretion and
CC gastro-pyloro-duodenal activity.

CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- TISSUE SPECIFICITY: Glucagon is secreted in the A cells of the
CC islets of Langerhans. GLP-1, GLP-2, oxyntomodulin and glucocentrin
CC are secreted from enteroendocrine cells throughout the

CC gastrointestinal tract.
CC -1- INDUCTION: Glucagon release is stimulated by hypoglycemia and
CC inhibited by hyperglycemia, insulin, and somatostatin. GLP-1 and
CC GLP-2 are induced in response to nutrient ingestion (By
CC similarity).
CC -1- PTH: Proglucagon is posttranslationally processed in a tissue-
CC specific manner in pancreatic A cells and intestinal L cells. In
CC pancreatic A cells, the major bioactive hormone is glucagon
CC cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1
CC liberates GLP-1. GLP-2, glucicentin and oxyntomodulin. GLP-1 is
CC further N-terminally truncated by posttranslational processing in
CC the intestinal L cells resulting in GLP-1(7-37) GLP-1(7-36)amide.
CC The C-terminal amidation is neither important for the metabolism
CC of GLP-1 nor for its effects on the endocrine pancreas (By
CC similarity).
CC -1- SIMILARITY: Belongs to the glucagon family.
CC -----
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CC use by non-profit institutions as long as its content is in no way
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CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL: K00107; AAA30538.1; -
CC PDB: 1XK6; NMR; A=53-81.
CC InterPro: IPR000532; Glucagon.
CC Pfam: PF00123; Hormone 2; 3.
CC PRINTS: PR00275; GLUCAGON.
CC PROSITE: PS00260; GLUCAGON: 4.
CC 3D-structure: Amidation: Cleavage on pair of basic residues;
CC Direct protein sequencing; Glucagon family; Hormone; Signal.
CC SIGNAL 1 20
CC PEPTIDE 21 89 Glucicentin (By similarity).
CC PEPTIDE 21 50 Glucicentin-related polypeptide (By
CC similarity).
CC Oxyntomodulin (By similarity).
CC Glucagon.
CC PEPTIDE 53 89
CC PEPTIDE 53 81
CC PROPEP 84 89 By similarity.
CC PEPTIDE 92 128 Glucagon-like peptide 1 (By similarity).
CC PEPTIDE 98 128 Glucagon-like peptide 1(7-37) (By
CC similarity).
CC Glucagon-like peptide 1(7-36) (By
CC similarity).
CC PEPTIDE 98 127
CC PROPEP 121 145 By similarity.
CC PEPTIDE 126 178 Glucagon-like peptide 2 (By similarity).
CC SITE 52 53 Cleavage (by PCSK2) (By similarity).
CC SITE 83 84 Cleavage (by PCSK1 and PCSK2) (By
CC similarity).
CC SITE 91 92 Cleavage (by PCSK1) (By similarity).
CC SITE 97 98 Cleavage (by PCSK1) (By similarity).
CC SITE 130 131 Cleavage (by PCSK1) (By similarity).
CC SITE 146 146 Cleavage (by PCSK1) (By similarity).
CC MOD_RES 127 127 Arginine amide (G-128 provides amide
CC group) (By similarity).
CC TURN 60 64
CC TURN 74 74
CC HELIX 75 78
CC SEQUENCE 180 AA; 20944 MW; 8DB4FF05B9F15FF CRC64;
CC
CC Query Match 100.0%; Score 155; DB 1; Length 180;
CC Best Local Similarity 100.0%; Pred. No. 1.le-13;
CC Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

AC P29794; Q95L60;
DT 01-APR-1993 (Rel. 25, Created)
DT 29-MAR-2004 (Rel. 43, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Glucagon precursor [contains: Glucicentin; Glucicentin-related polypeptide
DE (GRP); Oxyntomodulin (OXY) (OXN); Glucagon; Glucagon-like peptide 1
DE (GLP-1); Glucagon-like peptide 1(7-37) (GLP-1(7-37)); Glucagon-like
DE peptide 1(7-36) (GLP-1(7-36)); Glucagon-like peptide 2 (GLP-2)].
GN Name=GCC;
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A.
RP TISSUE=Pancreas, and Stomach;
RX PubMed=11916259;
RA Irwin D.M.;
RT "cDNA cloning of proglucagon from the stomach and pancreas of the
RT dog";
RU DNA Seq. 12:253-260(2001).
RN [2]
RP SEQUENCE OF 21-89.
RP TISSUE=ileum;
RX MEDLINE=89185675; PubMed=3238052;
RA Shinomura Y., Eng J., Yalow R.S.;
RT "Immunoreactive glucagons purified from dog pancreas, stomach and
RT ileum";
RU Regul. Pept. 23:299-308(1988).
RN [3]
RP PROCESSING BY PCSK1 AND PCSK2.
RX PubMed=10499540;
RA Damholt A.B., Buchan A.M., Holst J.J., Kofod H.;
RT "Proglucagon processing profile in canine L cells expressing
RT endogenous prohormone convertase 1/3 and prohormone convertase 2";
RU Endocrinology 140:4800-4808(1999).
RN [4]
RP REVIEW.
RX PubMed=12554744;
RA Drucker D.J.;
RT "Glucagon-like peptides: regulators of cell proliferation,
RT differentiation, and apoptosis";
RU Mol. Endocrinol. 17:161-171(2003).
RN [5]
RP REVIEW.
RX PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
RA Jiang G., Zhang B.B.;
RT "Glucagon and regulation of glucose metabolism";
RU Am. J. Physiol. 284:E671-E678(2003).
RN [6]
RP REVIEW.
RX PubMed=10322410;
RA Drucker D.J.;
RT "Glucagon-like peptide 2";
RU Trends Endocrinol. Metab. 10:153-156(1999).
RN [7]
RP REVIEW.
RX PubMed=10605628;
RA Kieffer T.J., Habener J.F.;
RT "The glucagon-like peptides";
RU Endocr. Rev. 20:876-913(1999).
CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
CC homeostasis. Regulates blood glucose by increasing gluconeogenesis
CC and decreasing glycolysis. A counterregulatory hormone of insulin.
CC raises plasma glucose levels in response to insulin-induced
CC hypoglycemia (By similarity).
CC -1- FUNCTION: GLP-1 is a potent stimulator of glucose-dependent
CC insulin release. Play important roles on gastric motility and the
CC suppression of satiety and stimulation of glucose disposal in
CC peripheral tissues. Independent of the actions of insulin. Have
CC growth-promoting activities on intestinal epithelium. May also
CC regulate the hypothalamic pituitary axis (HPA) via effects on LH,

- RT Klausner R.D., Collins F.S., Wagner L., Shennan C.M., Schuler G.D.,
RT Altschul S.F., Zeeberg B., Buetow K.H., Scheffer C.F., Bhat N.K.,
RT Hopkins R.F., Jordan H., Moore T., Max S.I., Mang J., Hsieh F.,
RT Diachenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RT Stapleton M., Soares M.B., Bernaldo M.F., Casavant T.L., Scheetz T.E.,
RT Brownstein M.C., Uebin T.B., Toshiyuki S., Carninci P., Prange C.,
RT Rana S.S., Loggellano N.A., Peters G.J., Adamson R.D., Mullaly S.J.,
RT Bosak S.A., McMan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RT Richards S., Morley K.C., Hale K.M., Garcia A.M., Gay L.J., Hulyk S.W.,
RT Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RT Fahy J., Helton E., Ketterman M., Madan A., Rodrigues S., Sanchez A.,
RT Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RT Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RT Rodriguez A.C., Grimwood J., Schmutz J., Myers R.W.,
RT Butlerfield Y.S.N., Krzywinski M.I., Skalska U., Smalins D.E.,
RT Scherch A., Schein J.E., Jones S.J.M., Marra M.A.,
RT "Generation and initial analysis of more than 15,000 full-length human
RT and mouse cDNA sequences.";
RT Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903 (2002).
- RT [16]
RT SEQUENCE OF 53-81.
RT PubMed=11946536;
RT Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT "The amino acid sequence of human glucagon.";
RT FEBS Lett. 21:315-319 (1972).
- RT [17]
RT SEQUENCE OF 98-127.
RT MEDLINE=89372238; PubMed=2753890;
RT Orskov C., Bertrant M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT "Complete sequence of glucagon-like peptide-1 from human and pig
RT small intestine.";
RT J. Biol. Chem. 264:12826-12829 (1989).
- RT [18]
RT FUNCTION OF GLP1 BIOACTIVE FORMS.
RT PubMed=8482423;
RT Orskov C., Wettersgren A., Holst J.J.;
RT "Biological effects and metabolic rates of glucagonlike peptide-1 7-36
RT amide and glucagonlike peptide-1 7-37 in healthy subjects are
RT indistinguishable.";
RT Diabetes 42:658-661 (1993).
- RT [19]
RT FUNCTION OF OXYNTOMODULIN.
RT PubMed=14557443;
RT Cohen M.A., Ellis S.M., Le Roux C.W., Batterham R.L., Park A.,
RT Patterson M., Frost G.S., Ghatei M.A., Bloom S.R.;
RT "Oxyntomodulin suppresses appetite and reduces food intake in
RT humans.";
RT J. Clin. Endocrinol. Metab. 88:4696-4701 (2003).
- RT [10]
RT FUNCTION OF GLICENTIN.
RT PubMed=1463234;
RT Tadokoro R., Shimizu T., Hosaka A., Kaneko M., Satoh Y., Yamashiro Y.;
RT "Postnatal and postprandial changes in plasma concentrations of
RT glucicentin in term and preterm infants.";
RT Acta Paediatr. 92:1175-1179 (2003).
- RT [11]
RT PROCESSING BY PCSK2.
RT PubMed=9287128;
RT Rouille Y., Bianchi M., Irminger J.C., Halban P.A.;
RT "Role of the prohormone convertase PC2 in the processing of
RT proglucagon to glucagon.";
RT FEBS Lett. 413:119-123 (1997).
- RT [12]
RT PROCESSING BY PCSK1.
RT PubMed=12651102;
RT Bonic A., Mackin R.B.;
RT "Expression, purification, and PC1-mediated processing of human
RT proglucagon, glicentin, and major proglucagon fragment.";
RT Protein Expr. Purif. 26:15-24 (2003).
- RT [13]
RT REVIEW.
RT PubMed=14719035; DOI=10.1139/Y03-107;
RT Brubaker P.L., Amin Y.;
- RT [14]
RT "Direct and indirect mechanisms regulating secretion of glucagon-like
RT peptide-1 and glucagon-like peptide-2.";
RT Can. J. Physiol. Pharmacol. 81:1005-1012 (2003).
- RT [15]
RT REVIEW.
RT PubMed=12554744;
RT Drucker D.J.;
RT "Glucagon-like peptides: regulators of cell proliferation,
RT differentiation, and apoptosis.";
RT Mol. Endocrinol. 17:161-171 (2003).
- RT [16]
RT REVIEW.
RT PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
RT Jiang G., Zhang B.B.;
RT "Glucagon and regulation of glucose metabolism.";
RT Am. J. Physiol. 284:E671-E678 (2003).
- RT [17]
RT REVIEW.
RT PubMed=10322410;
RT Drucker D.J.;
RT "Glucagon-like peptide 2.";
RT Trends Endocrinol. Metab. 10:153-156 (1999).
- RT [18]
RT REVIEW.
RT PubMed=10605628;
RT Kieffer T.J., Habener J.F.;
RT "The glucagon-like peptides.";
RT Endocr. Rev. 20:876-913 (1999).
- RT [19]
RT X-RAY CRYSTALLOGRAPHY (3.0 ÅNGSTROMS) OF 53-81.
RT MEDLINE=98334683; PubMed=9667960;
RT Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.-W.,
RT Azizeh B.Y., Trivedi D., Hruby V.J.;
RT "Structure-function studies on positions 17, 18, and 21 replacement
RT analogues of glucagon: the importance of charged residues and salt
RT bridges in glucagon biological activity.";
RT J. Med. Chem. 41:2693-2700 (1998).
- RT [20]
RT STRUCTURE BY NMR OF 98-127.
RT PubMed=1194215;
RT Chang X., Keller D., O'Donoghue S.I., Led J.J.;
RT "NMR studies of the aggregation of glucagon-like peptide-1: formation
RT of a symmetric helical dimer.";
RT FEBS Lett. 515:165-170 (2002).
- RT [21]
RT STRUCTURE BY NMR OF GLUCAGON ANTAGONIST.
RT PubMed=12627948; DOI=10.1021/bj026629t;
RT Ying J., Ahn J.-W., Jacobsen N.E., Brown M.F., Hruby V.J.;
RT "NMR solution structure of the glucagon antagonist [desHis1, desPhe6,
RT Glu9]glucagon amide in the presence of perdeuterated
RT dodecylphosphocholine micelles.";
RT Biochemistry 42:2825-2835 (2003).
- RT [22]
RT FUNCTION: Glucagon plays a key role in glucose metabolism and
RT homeostasis. Regulates blood glucose by increasing gluconeogenesis
RT and decreasing glycolysis. A counterregulatory hormone of insulin,
RT raises plasma glucose levels in response to insulin-induced
RT hypoglycemia. Plays an important role in initiating and
RT maintaining hyperglycemic conditions in diabetes.
RT [23]
RT FUNCTION: GLP-1 is a potent stimulator of glucose-dependent
RT insulin release. Play important roles on gastric motility and the
RT suppression of plasma glucagon levels. May be involved in the
RT suppression of satiety and stimulation of glucose disposal in
RT peripheral tissues, independent of the actions of insulin. Have
RT growth-promoting activities on intestinal epithelium. May also
RT regulate the hypothalamic pituitary axis (HPA) via effects on LH,
RT TSH, CRH, oxytocin, and vasopressin secretion. Increases islet
RT mass through stimulation of islet neogenesis and pancreatic beta
RT cell proliferation. Inhibits beta cell apoptosis.
RT [24]
RT FUNCTION: GLP-2 stimulates intestinal growth and up-regulates
RT villus height in the small intestine, concomitant with increased
RT crypt cell proliferation and decreased enterocyte apoptosis. The
RT gastrointestinal tract, from the stomach to the colon is the
RT principal target for GLP-2 action. Plays a key role in nutrient

CC homeostasis, enhancing nutrient assimilation through enhanced
 CC gastrointestinal function, as well as increasing nutrient
 CC disposal. Stimulates intestinal glucose transport and decreases
 CC mucosal permeability.
 CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake.
 CC Inhibits gastric emptying in humans. Suppression of gastric
 CC emptying may lead to increased gastric distension, which may
 CC contribute to satiety by causing a sensation of fullness.
 CC
 Query Match 100.0%; Score 155; DB 1; Length 180;
 Best Local Similarity 100.0%; Pred. NO. 1,1e-13;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 Oy 1 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 30
 Db 98 HAEGFTSDVSSYLEGQAKEFIAMLVKGR 127
 RESULT 8
 ID GLUC_MESAU STANDARD; PRT; 180 AA.
 AC P01273;
 DT 21-JUL-1996 (Rel. 01, Created)
 DT 01-SEP-1996 (Rel. 33, Last sequence update)
 DT 01-OCT-2004 (Rel. 45, Last annotation update)
 DE Glucagon precursor [contains: Glucagon; Glucocorticoid-related polypeptide
 DE (GRP); Oxyntomodulin (OXY) (OXN); Glucagon; Glucagon-like peptide 1
 DE (GLP-1); Glucagon-like peptide 1 (7-37) (GLP-1(7-37)); Glucagon-like
 DE peptide 1 (7-36) (GLP-1(7-36)); Glucagon-like peptide 2 (GLP-2)].
 GN Name=GGC;
 OS Mesocricetus auratus (Golden hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Mesocricetus.
 OC NCBI_TaxID=10036;
 RN [1]
 RN SEQUENCE FROM N.A.
 RX MEDLINE=83167563; PubMed=6835407;
 RA Bell G.I., Santeire R.F., Mullendach G.T.;
 RT "Hamster preproglucagon contains the sequence of glucagon and two
 RT related peptides.";
 RL Nature 302:716-718(1983).
 RN [2]
 RN REVISIONS TO 12-15.
 RA Bell G.I.;
 RT Submitted (JUN-1985) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RN REVIEW.
 RX PubMed=12554744;
 RA Drucker D.J.;
 RT "Glucagon-like peptides: regulators of cell proliferation,
 RT differentiation, and apoptosis.";
 RL Mol. Endocrinol. 17:161-171(2003).
 RN [4]
 RN REVIEW.
 RX PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
 RA Jiang G., Zhang B.B.;
 RT "Glucagon and regulation of glucose metabolism.";
 RL Am. J. Physiol. 284:E671-E678(2003).
 RN [5]
 RN REVIEW.
 RX PubMed=10322410;
 RA Drucker D.J.;
 RT "Glucagon-like peptide 2.";
 RL Trends Endocrinol. Metab. 10:153-156(1999).
 RN [6]
 RN REVIEW.
 RX PubMed=10605628;
 RA Kieffer T.J., Habener J.F.;
 RT "The glucagon-like peptides.";
 RL Endocr. Rev. 20:876-913(1999).
 CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
 CC homeostasis. Regulates blood glucose by increasing gluconeogenesis

CC and decreasing glycolysis. A counterregulatory hormone of insulin,
 CC raises plasma glucose levels in response to insulin-induced
 CC hypoglycemia (By similarity).
 CC -1- FUNCTION: GLP-1 is a potent stimulator of glucose-dependent
 CC insulin release. Play important roles on gastric motility and the
 CC suppression of plasma glucagon levels. May be involved in the
 CC peripheral tissues, independent of the actions of insulin. Have
 CC growth-promoting activities on intestinal epithelium. May also
 CC regulate the hypothalamic pituitary axis (HPA) via effects on LH,
 CC TSH, CRH, oxytocin, and vasopressin secretion. Increases islet
 CC mass through stimulation of islet neogenesis and pancreatic beta
 CC cell proliferation (By similarity).
 CC -1- FUNCTION: GLP-2 stimulates intestinal growth and up-regulates
 CC villus height in the small intestine concomitant with increased
 CC crypt cell proliferation and decreased enterocyte apoptosis. The
 CC gastrointestinal tract, from the stomach to the colon is the
 CC principal target for GLP-2 action. Plays a key role in nutrient
 CC homeostasis, enhancing nutrient assimilation through enhanced
 CC gastrointestinal function, as well as increasing nutrient
 CC disposal. Stimulates intestinal glucose transport and decreases
 CC mucosal permeability (By similarity).
 CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake (By
 CC similarity).
 CC -1- FUNCTION: Glucocorticoid may modulate gastric acid secretion and
 CC gastro-pyloro-duodenal activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: Secreted.
 CC -1- INDUCTION: Glucagon release is stimulated by hypoglycemia and
 CC inhibited by hyperglycemia, insulin, and somatostatin. GLP-1 and
 CC GLP-2 are induced in response to nutrient ingestion (By
 CC similarity).
 CC -1- PFM: Proglucagon is posttranslationally processed in a tissue-
 CC specific manner in pancreatic A cells and intestinal L cells. In
 CC pancreatic A cells, the major bioactive hormone is glucagon
 CC cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1
 CC liberates GLP-1, GLP-2, glucocorticoid and oxyntomodulin. GLP-1 is
 CC further N-terminally truncated by posttranslational processing in
 CC the intestinal L cells resulting in GLP-1(7-37) GLP-1(7-36)amide.
 CC The C-terminal amidation is neither important for the metabolism
 CC of GLP-1 nor for its effects on the endocrine pancreas (By
 CC similarity).
 CC -1- SIMILARITY: Belongs to the glucagon family.
 CC
 CC -----
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 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL; J00059; AAA37074.1; -.
 CC HSSP; P01275; 1DOR.
 CC InterPro: IPR000532; Glucagon.
 CC Pfam; PF00123; Hormone_2; 3.
 CC PRINTS; PR00275; GLUCAGON.
 CC PROSITE; PS00260; GLUCAGON; 4.
 CC AMIDAATION: Cleavage on pair of basic residues; Glucagon family;
 CC Hormone; Signal.
 CC SIGNAL 1 20
 CC FT PEPIDE 21 89
 CC FT PEPIDE 21 50
 CC FT PEPIDE 53 89
 CC FT PEPIDE 53 81
 CC FT PROPEP 84 89
 CC FT PEPIDE 92 128
 CC FT PEPIDE 98 128
 CC FT PEPIDE 98 127
 CC FT PEPIDE 131 145
 CC FT PROPEP 131 145
 CC FT PEPIDE 146 178
 CC
 CC Glucocorticoid (By similarity).
 CC Glucocorticoid-related polypeptide (By
 CC similarity).
 CC Oxyntomodulin (By similarity).
 CC Glucagon (By similarity).
 CC By similarity.
 CC Glucagon-like peptide 1 (By similarity).
 CC Glucagon-like peptide 1 (7-37) (By
 CC similarity).
 CC Glucagon-like peptide 1 (7-36) (By
 CC similarity).
 CC By similarity.
 CC Glucagon-like peptide 2 (By similarity).
 CC Glucagon-like peptide 2 (By similarity).

FT SITE 52 Cleavage (by PCSK2) (by similarity).
 FT SITE 53 Cleavage (by PCSK1 and PCSK2) (by
 FT SITE 83 similarity).
 FT SITE 84
 FT SITE 91 Cleavage (by PCSK1) (by similarity).
 FT SITE 92 Cleavage (by PCSK1) (by similarity).
 FT SITE 97 Cleavage (by PCSK1) (by similarity).
 FT SITE 130 Cleavage (by PCSK1) (by similarity).
 FT SITE 131 Cleavage (by PCSK1) (by similarity).
 FT SITE 145 Cleavage (by PCSK1) (by similarity).
 FT SITE 146 Arginine amide (G-128 provides amide
 FT MOD_RES 127 group) (by similarity).
 FT SITE 127
 SC SEQUENCE 180 AA; 20954 MM; 02791849D7AADD4B CRC64;
 Query Match 100.0%; Score 155; DB 1; Length 180;
 Best Local Similarity 100.0%; Pred. No. 1.1e-13;
 Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 1 HAEGFTSDVSYLGGAAKEFIAMLYKGR 30
 98 HAEGFTSDVSYLGGAAKEFIAMLYKGR 127
 RESULT 9
 GLUC_MOUSE STANDARD; PRT; 180 AA.
 ID GLUC_MOUSE
 AC P55095;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 05-JUL-2004 (Rel. 44, Last annotation update)
 DE Glucagon precursor [Contains: Glucagon; Glucagon-related polypeptide
 DE (GRP-1); Oxyntomodulin (OXY) (OMV); Glucagon; Glucagon-like peptide 1
 DE (GLP-1); Glucagon-like peptide 1(7-37) (GLP-1(7-37)); Glucagon-like
 DE peptide 1(7-36) (GLP-1(7-36)); Glucagon-like peptide 2 (GLP-2)].
 GN Name=GCg;
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Pancreatic islets;
 RA MEDLINE=95247722; PubMed=7730317;
 RA Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.,
 RA McDonald J.K., Mackin R.B., Noe B.D.;
 RT "Processing of mouse proglucagon by recombinant prohormone convertase
 RT 1 and immunopurified prohormone convertase 2 in vitro.";
 RU J. Biol. Chem. 270:10136-10146(1995).
 RN [2]
 RP SEQUENCE FROM N.A.
 RA Shammadin R., Krepel W.;
 RC "Mouse glucagon full length cDNA.";
 RT Submitted (JUN-2000) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP SEQUENCE FROM N.A.
 RC STRAIN=C57BL/6J; TISSUE=Pancreas;
 RA MEDLINE=22354683; PubMed=1246651; DOI=10.1038/nature01266;
 RA Okazaki Y., Furuno M., Kasukawa T., Adachi J., Bono S.,
 RA Mikado I., Oato N., Saito R., Suzuki H., Yamataka I., Kiyosawa H.,
 RA Yagi K., Tomaru Y., Hasegawa Y., Nogami A., Schonbach C., Gojochori T.,
 RA Baldarelli R., Hill D.P., Bult C., Hume D.A., Quackenbush J.,
 RA Schriml L.M., Kanapin A., Matunda H., Batalov S., Beisel K.W.,
 RA Blake J.A., Bradt D., Brusic V., Chochia C., Corbani L.B., Cousins S.,
 RA Dalla B., Dragani T.A., Fletcher C.F., Forrest A., Frazer K.S.,
 RA Gaasterland T., Gariboldi M., Gissi C., Godzik A., Gough J.,
 RA Grimmond S., Gustinchik S., Hirokawa N., Jackson I.J., Jarvis E.D.,
 RA Kanai A., Kawai H., Kawasawa Y., Kedzierski R.M., King B.L.,
 RA Kengaya A., Kurochkin I.V., Lee Y., Lenhard B., Lyons P.A.,
 RA Maglott D.R., Maltais L., Marchionni L., McKernie L., Miki H.,
 RA Nagashima T., Nunata K., Okido T., Pavan W.J., Pertea G., Pesole G.,
 RA Petrovsky N., Pillai R., Pontius J.U., Qi D., Ramachandran S.,
 RA Ravasi T., Reed J.C., Reed D.J., Reid J., Ring B.Z., Ringwald M.,
 RA Savelin A., Schneider C., Sempke C.A., Setou M., Shimada K.,
 RA Sultana R., Takenaka Y., Taylor M.S., Teasdale R.D., Tomita M.,
 RA Veirardo R., Wagner L., Wahlestedt C., Wang Y., Watanabe Y., Wells C.,
 RA Wilting L.G., Wyshaw-Boris A., Yangisawa M., Yang I., Yang L.,
 RA Yuan Z., Zavolan M., Zhu Y., Zimmer A., Zimin P., Hayatsu N.,
 RA Hirozane-Kishikawa T., Kono H., Nakamura M., Sakazume N., Sato K.,
 RA Shiraki T., Maki K., Kawai T., Aizawa K., Arikawa T., Fukuda S.,
 RA Hara A., Hashizume W., Imotani K., Ishii Y., Itoh M., Kagawa I.,
 RA Miyazaki A., Sakai K., Sasaki D., Shibata K., Shinagawa A.,
 RA Yasunishi A., Yoshino K., Yashima M., Waterston R., Lander E.S., Rogers J.,
 RA Birney E., Hayashizaki Y.;
 RT "Analysis of the mouse transcriptome based on functional annotation of
 RT 60,770 full-length cDNAs.";
 RU Nature 420:563-573(2002).
 RN [4]
 RP SEQUENCE FROM N.A.
 RC STRAIN=FVB/N; TISSUE=Colon;
 RA MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
 RA Klusner R.D., Collins F.S., Wagner K.H., Shenmen C.M., Schuler G.D.,
 RA Altschul S.F., Zeeberg B., Bueltow K.H., Schaefer C.F., Bhat N.K.,
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
 RA Stapleton M., Soares M.B., Bonaldi M.F., Casavant T.L., Schaefer T.E.,
 RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
 RA Raha S.S., Lomelianno N.A., Peters G.J., Abramson R.D., Mallory S.J.,
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hultyk S.W.,
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
 RA Fahey J., Helton E., Kettman W., Madan A., Rodriguez S., Sanchez A.,
 RA Whitting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
 RA Butterfield Y.S.N., Krzyzinski M.I., Skalska U., Smalls D.E.,
 RA Schnerch A., Schein U.E., Jones S.J.W., Marra M.A.,
 RT "Generation and initial analysis of more than 15,000 full-length human
 RT and mouse cDNA sequences.";
 RU Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
 RN [5]
 RP FUNCTION OF GLP-1 AND GLP-1(7-36) AMIDE.
 RA PubMed=1866889;
 RA Fridolf T., Bottcher G., Sundler F., Ahren B.;
 RT "GLP-1 and GLP-1(7-36) amide: influences on basal and stimulated
 RT insulin and glucagon secretion in the mouse.";
 RU Pancreas 6:208-215(1991).
 RN [6]
 RP PROCESSING BY PCSK1.
 RA PubMed=9407057;
 RA Kaulle Y., Kantengwa S., Irminger J.C., Halban P.A.;
 RT "Role of the prohormone convertase PC1 in the processing of
 RT proglucagon to glucagon-like peptide 1.";
 RU J. Biol. Chem. 272:32810-32816(1997).
 RN [7]
 RP PROCESSING BY PCSK2.
 RA PubMed=11356850; DOI=10.1074/jbc.M10362200;
 RA Futura M., Zhou A., Webb G., Carroll R., Ravazzola M., Orci L.,
 RA Steiner D.F.;
 RT "Severe defect in proglucagon processing in islet A-cells of
 RT prohormone convertase 2 null mice.";
 RU J. Biol. Chem. 276:27197-27202(2001).
 RN [8]
 RP REVIEW.
 RA PubMed=12554744;
 RA Drucker D.J.;
 RT "Glucagon-like peptides: regulators of cell proliferation,
 RT differentiation, and apoptosis.";
 RU Mol. Endocrinol. 17:161-171(2003).
 RN [9]
 RP REVIEW.
 RA PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
 RA Jiang G., Zhang B.B.;
 RT "Glucagon and regulation of glucose metabolism.";
 RU Am. J. Physiol. 284:E671-E678(2003).
 RN [10]
 RP REVIEW.
 RA PubMed=10322410;
 RA Drucker D.J.;

RT "Glucagon-like peptide 2.";
 RL Trends Endocrinol. Metab. 10:153-156(1999).
 RA [11]
 RP REVIEW.
 RX PubMed=10605628;
 RT Kieffer T.J., Habener J.F.;
 RT "The glucagon-like peptides.";
 RL Endocr. Rev. 20:876-913(1999).
 CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
 CC homeostasis. Regulates blood glucose by increasing glucogenesis
 CC and decreasing glycolysis. A counterregulatory hormone of insulin,
 CC raises plasma glucose levels in response to insulin-induced
 CC hypoglycemia (By similarity).
 CC -1- FUNCTION: GIP-1 is a potent stimulator of glucose-dependent
 CC insulin release. Play important roles on gastric motility and the
 CC suppression of plasma glucagon levels. May be involved in the
 CC suppression of satiety and stimulation of glucose disposal in
 CC peripheral tissues. Independent of the actions of insulin. Have
 CC growth-promoting activities on intestinal epithelium. May also
 CC regulate the hypothalamic pituitary axis (HPA) via effects on LH,
 CC TSH, CRH, oxytocin, and vasopressin secretion. Increases islet
 CC mass through stimulation of islet neogenesis and pancreatic beta
 CC cell proliferation (By similarity).
 CC -1- FUNCTION: GIP-2 stimulates intestinal growth and up-regulates
 CC villus height in the small intestine, concomitant with increased
 CC crypt cell proliferation and decreased enterocyte apoptosis. The
 CC gastrointestinal tract, from the stomach to the colon is the
 CC principal target for GIP-2 action. Plays a key role in nutrient
 CC homeostasis, enhancing nutrient assimilation through enhanced
 CC gastrointestinal function, as well as increasing nutrient
 CC disposal. Stimulates intestinal glucose transport and decreases
 CC mucosal permeability (By similarity).
 CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake (By
 CC similarity).
 CC -1- FUNCTION: Glucagon may modulate gastric acid secretion and
 CC gastro-pyloro-duodenal activity.
 CC -1- SUBCELLULAR LOCATION: Secreted.
 CC -1- TISSUE SPECIFICITY: Glucagon is secreted in the A cells of the
 CC islets of Langerhans. GIP-1, GIP-2, oxyntomodulin and glucagon
 CC are secreted from enteroendocrine cells throughout the
 CC gastrointestinal tract. GIP1 and GIP2 are also secreted in
 CC selected neurons in the brain.
 CC -1- INDUCTION: Glucagon release is stimulated by hypoglycemia and
 CC inhibited by hyperglycemia, insulin, and somatostatin. GIP-1 and
 CC GIP-2 are induced in response to nutrient ingestion (By
 CC similarity).
 CC -1- PTM: Proglucagon is posttranslationally processed in a tissue-
 CC specific manner in pancreatic A cells and intestinal L cells. In
 CC pancreatic A cells, the major bioactive hormone is glucagon
 CC cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1
 CC liberates GIP-1, GIP-2, glucagon and oxyntomodulin. GIP-1 is
 CC further N-terminally truncated by posttranslational processing in
 CC the intestinal L cells resulting in GIP-1(7-37) GIP-1(7-36)amide.
 CC The C-terminal amidation is neither important for the metabolism
 CC of GIP-1 nor for its effects on the endocrine pancreas (By
 CC similarity).
 CC -1- SIMILARITY: Belongs to the glucagon family.
 CC -----
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 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL: 246845; CA86902.1;
 DR EMBL: AF276754; AA368898.1;
 DR EMBL: AK007911; BAB25344.1;
 DR EMBL: BC012975; AAH12975.1;
 DR PIR: A57294; A57294.
 DR HSSP: P01275; 1DOR.
 DR MGD: MGI:95674; Gcg.

DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; Hormone 2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 CC -----
 CC Query Match 100.0%; Score 155; DB 1; Length 160;
 CC Best Local Similarity 100.0%; Pred.No. 1,1e-13;
 CC Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 CC -----
 CC Qy 1 HAEGFTSDVSYSLGQAKERFIAMLVKGR 30
 CC Db 98 HAEGFTSDVSYSLGQAKERFIAMLVKGR 127
 CC -----
 CC RESULT 10
 CC ID GLUC_OCTDE STANDARD; PRI; 180 AA.
 CC AC P22890;
 CC DT 01-AUG-1991 (Rel. 19, Created)
 CC DT 01-AUG-1991 (Rel. 19, Last sequence update)
 CC DT 05-JUN-2004 (Rel. 44, Last annotation update)
 CC DE Glucagon precursor [contamin: Glucagon, Glucagon-related polypeptide
 CC (GSP); Oxyntomodulin (OXY) (OMX); Glucagon; Glucagon-like peptide 1
 CC (GIP-1); Glucagon-like peptide 1(7-37) (GIP-1(7-37)); Glucagon-like
 CC peptide 1(7-36) (GIP-1(7-36)); Glucagon-like peptide 2 (GIP-2)].
 CC GN Name=CG;
 CC OS Octodon degus (Degu).
 CC CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eulheta; Rodentia; Hystriognathi; Octodontidae; Octodon.
 CC NCBI_Taxid=10160;
 CC RN [1]
 CC RP SEQUENCE FROM N.A.
 CC RX MEDLINE=91155952; PubMed=2293024;
 CC RA Nishi M., Steiner D.F.;
 CC RT "Cloning of complementary DNAs encoding islet amyloid polypeptide,
 CC insulin, and glucagon precursors from a New World rodent, the degu,
 CC Octodon degus".
 CC RL Mol. Endocrinol. 4:1192-1196(1990).
 CC RN [2]
 CC RP REVIEW.
 CC RX PubMed=12554744;
 CC RA Drucker D.J.;
 CC RT "Glucagon-like peptides: regulators of cell proliferation,
 CC differentiation, and apoptosis".
 CC RL Mol. Endocrinol. 17:161-171(2003).
 CC RN [3]
 CC RP REVIEW.
 CC RX PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
 CC RA Jiang G., Zhang B.B.;
 CC RT "Glucagon and regulation of glucose metabolism".
 CC RL Am. J. Physiol. 284:E671-E678(2003).
 CC RN [4]
 CC RP REVIEW.
 CC RX PubMed=10322410;
 CC RA Drucker D.J.;
 CC RT "Glucagon-like peptide 2.";
 CC RL Trends Endocrinol. Metab. 10:153-156(1999).
 CC RN [5]
 CC RP REVIEW.
 CC RX PubMed=10605628;
 CC RA Kieffer T.J., Habener J.F.;
 CC RT "The glucagon-like peptides.";
 CC RL Endocr. Rev. 20:876-913(1999).
 CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
 CC homeostasis. Regulates blood glucose by increasing glucogenesis
 CC and decreasing glycolysis. A counterregulatory hormone of insulin,
 CC raises plasma glucose levels in response to insulin-induced
 CC hypoglycemia (By similarity).
 CC -1- FUNCTION: GIP-1 is a potent stimulator of glucose-dependent
 CC insulin release. Play important roles on gastric motility and the
 CC suppression of plasma glucagon levels. May be involved in the
 CC suppression of satiety and stimulation of glucose disposal in
 CC peripheral tissues. Independent of the actions of insulin. Have
 CC growth-promoting activities on intestinal epithelium. May also

CC		release the hypothalamic pituitary axis (HPA) via effects on LH,
CC	CRH, oxytocin, and vasopressin (By similarity).	
CC	- FUNCTION: GLP-2 stimulates intestinal growth and up-regulates	
CC	villus height in the small intestine; concomitant with increased	
CC	crypt cell proliferation and decreased enterocyte apoptosis. The	
CC	gastrointestinal tract, from the stomach to the colon is the	
CC	principal target for GLP-2 action. Plays a key role in nutrient	
CC	homeostasis, enhancing nutrient assimilation through enhanced	
CC	gastrointestinal function, as well as increasing nutrient	
CC	disposal. Stimulates intestinal glucose transport and decreases	
CC	mucosal permeability (By similarity).	
CC	- FUNCTION: Glucagon may modulate gastric acid secretion and	
CC	gastro-pyloro-duodenal activity (By similarity).	
CC	- SUBCELLULAR LOCATION: Secreted.	
CC	- TISSUE SPECIFICITY: Glucagon is secreted in the A cells of the	
CC	islets of Langerhans. GLP-1, GLP-2, oxyntomodulin and ghrelin	
CC	are secreted from enteroendocrine cells throughout the	
CC	gastrointestinal tract. GLP1 and GLP2 are also secreted in	
CC	selected neurons in the brain.	
CC	- INDUCTION: Glucagon release is stimulated by hypoglycemia and	
CC	inhibited by hyperglycemia, insulin, and somatostatelin. GLP-1 and	
CC	GLP-2 are induced in response to nutrient ingestion (By	
CC	similarity).	
CC	- PM: Proglucagon is posttranslationally processed in a tissue-	
CC	specific manner in pancreatic A cells and intestinal L cells. In	
CC	pancreatic A cells, the major bioactive hormone is glucagon	
CC	cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1	
CC	liberates GLP-1, GLP-2, ghrelin and oxyntomodulin. GLP-1 is	
CC	further N-terminally truncated by posttranslational processing in	
CC	the intestinal L cells resulting in GLP-1(7-37), GLP-1(7-36)amide.	
CC	The C-terminal amidation is neither important for the metabolism	
CC	of GLP-1 nor for its effects on the endocrine pancreas (By	
CC	similarity).	
CC	- SIMILARITY: Belongs to the glucagon family.	
CC		
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CC	the European Bioinformatics Institute. There are no restrictions on its	
CC	use by non-profit institutions as long as its content is in no way	
CC	modified and this statement is not removed. Usage by and for commercial	
CC	entities requires a license agreement (see http://www.isb-sib.ch/announce/)	
CC	or send an email to license@isb-sib.ch .	
DR	EMBL; M57688; AAAA0588.1; --	
DR	PIR; G6118; GCRTDU.	
DR	HSSP; P01275; IDOR.	
DR	InterPro; IPR000532; Glucagon.	
DR	Pfam; PF00123; Hormone_2; 3.	
DR	PRINTS; PR00275; GLUCAGON.	
DR	PROSITE; PS00260; GLUCAGON; 4.	
KX	Amidation: Cleavage on pair of basic residues; Glucagon family;	
KX	Hormone; Signal.	
FT	SIGNAL	20
FT	PEPTIDE	21 .. 89
FT	PEPTIDE	21 .. 50
FT	PEPTIDE	53 .. 89
FT	PEPTIDE	53 .. 81
FT	PROPER	84 .. 89
FT	PEPTIDE	92 .. 128
FT	PEPTIDE	98 .. 128
FT	PEPTIDE	98 .. 127
FT	PROPER	131 .. 145
FT	PEPTIDE	146 .. 178
FT	PROPER	52 .. 53
FT	SITE	83 .. 84
FT	SITE	91 .. 92
FT	SITE	97 .. 98
FT	SITE	130 .. 131
FT	SITE	145 .. 146

FT	MOO_RES	127	127	Arginine amide (G-128 provides amide
FT	SEQUENCE	180 AA, 21165 MW,	686836160A2A3051 CRC64;	group) (By similarity).
5Q	SEQUENCE	180 AA, 21165 MW,	686836160A2A3051 CRC64;	
	Query Match	100.0%;	Score 155;	DB 1; Length 180;
	Best Local Similarity	100.0%;	Pred. No. 1,1e-13;	
	Matches	30;	Conservative	0; Mismatches 0; Indels 0; Gaps 0;
QY	1 HARGFTSPVSSYLEGQAKPEPIAMLYKGR 30			
Db	98 HARGFTSPVSSYLEGQAKPEPIAMLYKGR 127			
RESULT 11				
GLUC_PIG	STANDARD;	ERT;	180 AA.	
ID	GLUC_PIG			
AC	P01274; Q864V8;			
DT	21-JUN-1986 (Rel. 01, Created)			
DT	29-MAR-2004 (Rel. 43, Last sequence update)			
DT	01-OCT-2004 (Rel. 45, Last annotation update)			
DE	Glucagon precursor. [contains: Glucertin; Glucertin-related polypeptide			
DE	(GGP); Oxytocinodulin (OXY) (OXN); Glucagon; Glucagon-like peptide 1			
DE	(GLP-1); Glucagon-like peptide 1(17-37) (GLP-1(17-37)); Glucagon-like			
DE	peptide 1(17-36) (GLP-1(7-36)); Glucagon-like peptide 2 (GLP-2)).			
GN	Name=GGC;			
OS	Sus scrofa (Pig).			
CC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
CC	Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.			
CC	NCBI_TaxID=9823;			
CK	NCBI			
LN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Pancreas, and Small intestine;			
RA	Siggers R.H., Goldade B.G., Laarveld B., Van Kessel A.G.;			
RT	"Cloning of porcine proglucagon.";			
RL	Submitted (FEB-2003) to the EMBL/GenBank/DBJ databases.			
RP	[2]			
RP	SEQUENCE OF 21-89.			
RX	MEDLINE=81248172; PubMed=6894800;			
RA	Thim L., Moody A.J.;			
RT	"The primary structure of porcine glucicentin (proglucagon).";			
RL	Regul. Pept. 2:139-150(1981).			
RN	[3]			
RP	SEQUENCE OF 21-89.			
RX	MEDLINE=82221775; PubMed=7045833;			
RA	Thim L., Moody A.J.;			
RT	"The amino acid sequence of porcine glucicentin.";			
RL	Peptides 2 Suppl. 2:37-39(1981).			
RN	[4]			
RP	SEQUENCE OF 53-81.			
RA	Bromer W.W., Sim L.G., Behrens O.K.;			
RT	"The amino acid sequence of glucagon. V. Location of amide groups,			
RT	acid degradation studies and summary of sequential evidence.";			
RL	J. Am. Chem. Soc. 79:2807-2810(1957).			
RN	[5]			
RP	SEQUENCE OF 98-127.			
RA	MEDLINE=89327238; PubMed=2753890.			
RA	Orskov C., Bersant W., Johnsen A.H., Hoerjrup P., Holst J.J.;			
RT	"Complete sequences of glucagon-like peptide-1 from human and pig			
RT	small intestine.";			
RL	J. Biol. Chem. 264:12826-12829(1989).			
RN	[6]			
RP	SEQUENCE OF 131-178.			
RX	MEDLINE=88243712; PubMed=3379036.			
RA	Buhl T., Thim L., Kotod H., Orskov C., Harling H., Holst J.J.;			
RT	"Naturally occurring products of proglucagon 111-160 in the porcine			
RT	and human small intestine.";			
RL	J. Biol. Chem. 263:8621-8624(1988).			
RN	[7]			
RP	TISSUE SPECIFICITY.			
RP	PubMed=3530719;			
RA	Orskov C., Holst J.J., Knudsen S., Baldissera F.G., Poulsen S.S.,			
RA	Nielsen O.V.;			
RT	"Glucagon-like peptides GLP-1 and GLP-2, predicted products of the			

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains. The number of transformed cells was determined by the number of colonies obtained on the selective medium. The results are the mean of three independent experiments. Error bars represent the standard deviation.

RT glucagon gene, are secreted separately from pig small intestine but
RT not pancreas.";
RL Endocrinology 119:1467-1475(1986).
RN [8]
RX PubMed=12554744;
RA Drucker D.J.;
RT "Glucagon-like peptides: regulators of cell proliferation,
RT differentiation, and apoptosis.";
RL Mol. Endocrinol. 17:161-171(2003).
RN [9]
RP REVIEW.
RX PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;
RA Jiang G., Zhang B.B.;
RT "Glucagon and regulation of glucose metabolism.";
RL Am. J. Physiol. 284:E671-E678(2003).
RN [10]
RP REVIEW.
RX PubMed=10322410;
RA Drucker D.J.;
RT "Glucagon-like peptide 2.";
RL Trends Endocrinol. Metab. 10:153-156(1999).
RN [11]
RP REVIEW.
RX PubMed=10605628;
RA Kieffer T.J., Habener J.F.;
RT "The glucagon-like peptide.";
RL Endocr. Rev. 20:876-913(1999).
RN [12]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX MEDLINE=76051297; PubMed=171582;
RA Sasaki K., Dockrill S., Adamak D.A., Tickle I.J., Blundell T.L.;
RT "X-ray analysis of glucagon and its relationship to receptor
RT binding.";
RL Nature 257:751-757(1975).
RN
CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
CC homeostasis. Regulates blood glucose by increasing gluconeogenesis
CC and decreasing glycolysis. A counterregulatory hormone of insulin,
CC raises plasma glucose levels in response to insulin-induced
CC hypoglycemia (By similarity).
CC -1- FUNCTION: GIP-1 is a potent stimulator of glucose-dependent
CC insulin release. Play important roles on gastric motility and the
CC suppression of plasma glucagon levels. May be involved in the
CC peripheral tissues, independent of the actions of insulin. Have
CC growth-promoting activities on intestinal epithelium. May also
CC regulate the hypothalamic-pituitary axis (HPA) via effects on LH,
CC TSH, CRH, oxytocin, and vasopressin (By similarity).
CC -1- FUNCTION: GIP-2 stimulates intestinal growth and up-regulates
CC villus height in the small intestine, concomitant with increased
CC crypt cell proliferation and decreased enterocyte apoptosis. The
CC gastrointestinal tract, from the stomach to the colon is the
CC principal target for GIP-2 action. Plays a key role in nutrient
CC homeostasis, enhancing nutrient assimilation through enhanced
CC gastrointestinal function, as well as increasing nutrient
CC disposal. Stimulates intestinal glucose transport and decreases
CC mucosal permeability (By similarity).
CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake (By
CC similarity).
CC -1- FUNCTION: Glucagonin may modulate gastric acid secretion and
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CC -1- TISSUE SPECIFICITY: Glucagon is secreted in the A cells of the
CC islets of Langerhans. GIP-1, GIP-2, oxyntomodulin and glucagonin
CC are secreted from enterodocrine cells throughout the
CC gastrointestinal tract. GIP1 and GIP2 are also secreted in
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CC inhibited by hyperglycemia, insulin, and somatostatin. GIP-1 and
CC GIP-2 are induced in response to nutrient ingestion (By
CC similarity).
CC -1- PTM: Proglucagon is posttranslationally processed in a tissue-
CC specific manner in pancreatic A cells and intestinal L cells. In

CC pancreatic A cells, the major bioactive hormone is glucagon
CC cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1
CC liberates GIP-1, GIP-2, glucagonin and oxyntomodulin. GIP-1 is
CC further N-terminally truncated by posttranslational processing in
CC the intestinal L cells resulting in GIP-1(17-37) GIP-1(17-36)amide.
CC The C-terminal amidation is neither important for the metabolism
CC of GIP-1 nor for its effects on the endocrine pancreas (By
CC similarity).
CC -1- MISCELLANEOUS: GIP-2 does not have cleavage on a pair of basic
CC residues at C-terminus as in other mammals.
CC -1- SIMILARITY: Belongs to the glucagon family.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL: AY242124; AAC88211.1; -
CC PDB: 1GCV; X-ray; @33-61.
CC InterPro: IPR000532; Glucagon.
CC Pfam: PF00123; hormone2; 3.
CC PRINTS: PR00275; GLUCAGON.
CC SMART: SM00070; GLUCA; 3.
CC PROSITE: PS00260; GLUCAGON; 4.
CC 3D-structure: Amidation; Cleavage on pair of basic residues;
CC Direct protein sequencing; Glucagon family; Hormone; Signal.
CC
CC SIGNAL
CC 1 20
CC
CC PEPIDE 21 89
CC
CC PEPIDE 53 89
CC
CC PEPIDE 53 81
CC
CC PEPIDE 84 89
CC
CC PEPIDE 92 128
CC
CC PEPIDE 98 127
CC
CC PEPIDE 131 145
CC
CC PEPIDE 146 180
CC
CC PEPIDE 52 53
CC
CC SITE 83 84
CC
CC SITE 91 92
CC
CC SITE 97 98
CC
CC SITE 130 131
CC
CC SITE 145 146
CC
CC MOD_RSS 127 127
CC
CC CONFLICT 143 143
CC
CC SEQUENCE 180 AA; 21029 MW; 362997AB72197EB6 CRC64;
CC
CC SQ
CC
CC Query March 100.0%; Score 155; DB 1; Length 180;
CC Best Local Similarity 100.0%; Pred. No. 1,16-13;
CC Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
CC
CC QY 1 HAEGTTSVSVSLTEGAAKEFIANLVKGR 30
CC
CC Db 98 HAEGTTSVSVSLTEGAAKEFIANLVKGR 127
CC
CC
CC RESULT 12
CC GLUC_PAT
CC ID GLUC_PAT STANDARD; PRT; 180 AA.
CC AC P06863;
CC DT 01-JUN-1988 (Rel. 06, Created)
CC DT 01-JUN-1988 (Rel. 06, Last sequence update)
CC DT 05-JUL-2004 (Rel. 44, Last annotation update)
CC DE Glucagon precursor [Contains: Glucagonin; Glucagonin-related polypeptide
CC (GRP); Oxyntomodulin (OXY) (OXM); Glucagon; Glucagon-like peptide 1
CC (GIP-1); Glucagon-like peptide 1(17-37) (GIP-1(17-37)); Glucagon-like
CC peptide 1(17-36) (GIP-1(17-36)); Glucagon-like peptide 2 (GIP-2)]

GN Name=Gcg;
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 RX MEDLINE=101116;
 RX MEDLINE=6094539;
 RX MEDLINE=85054853; PubMed=6094539;
 RX Heinrich G., Gros P., Habener J.F.;
 "Glucagon gene sequence. Four of six exons encode separate functional
 domains of rat pre-proglucagon";
 J. Biol. Chem. 259:14082-14087(1984).
 RP SEQUENCE FROM N.A.
 RP MEDLINE=85051023; PubMed=6548696;
 RP Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
 "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
 amino acid sequences of the rat pancreatic complementary
 deoxyribonucleic acid";
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 RP Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
 Habener J.F.;
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 at the level of post-translational processing";
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 RP SEQUENCE OF 53-89.
 RP PubMed=7937770;
 RP Collier N.L., Walsh J.H., Wong H.C., Shively J.E., Davis M.T.,
 Lee T.D., Reeve J.R. Jr.;
 "Purification and sequence of rat oxyntomodulin";
 Proc. Natl. Acad. Sci. U.S.A. 91:9362-9366(1994).
 RP FUNCTION OF OXYNTOMODULIN.
 RP PubMed=11564680;
 RP Dakin C.L., Gunn I., Small C.J., Edwards C.M., Hay D.L., Smith D.M.,
 Chareil M.A., Bloom S.R.;
 "Oxyntomodulin inhibits food intake in the rat";
 Endocrinology 142:4244-4250(2001).
 RP PROCESSING BY PCSK1 AND PCSK2.
 RP PubMed=8721980;
 RP Dhanvantari S., Seidah N.G., Brubaker P.L.;
 "Role of prohormone convertases in the tissue-specific processing of
 proglucagon";
 Mol. Endocrinol. 10:342-355(1996).
 RP TISSUE SPECIFICITY.
 RP PubMed=1692320;
 RP Mojsov S., Kopiczynski M.G., Habener J.F.;
 "Both amidated and nonamidated forms of glucagon-like peptide I are
 synthesized in the rat intestine and the pancreas";
 J. Biol. Chem. 265:8001-8008(1990).
 RP REVIEW.
 RP PubMed=14719035; DOI=10.1139/Y03-107;
 RP Brubaker P.L., Amin Y.;
 "Direct and indirect mechanisms regulating secretion of glucagon-like
 peptide-1 and glucagon-like peptide-2";
 Can. J. Physiol. Pharmacol. 81:1005-1012(2003).
 RP REVIEW.
 RP PubMed=12554744;
 RP Brubaker P.L.;
 "Glucagon-like peptides: regulators of cell proliferation,
 differentiation, and apoptosis";
 Mol. Endocrinol. 17:161-171(2003).
 RP REVIEW.
 RP PubMed=12626323; DOI=10.1152/ajpendo.00492.2002;

RA Uiang G., Zhang B.B.;
 "Glucagon and regulation of glucose metabolism";
 Am. J. Physiol. 284:E671-E678(2003).
 RP REVIEW.
 RA PubMed=10322410;
 RA Drucker D.J.;
 "Glucagon-like peptide 2";
 Trends Endocrinol. Metab. 10:153-156(1999).
 RP REVIEW.
 RA PubMed=10605628;
 RA Kieffer T.J., Habener J.F.;
 "The glucagon-like peptides";
 Endocr. Rev. 20:876-913(1999).
 CC -1- FUNCTION: Glucagon plays a key role in glucose metabolism and
 homeostasis. Regulates blood glucose by increasing gluconeogenesis
 and decreasing glycolysis. A counterregulatory hormone of insulin,
 raises plasma glucose levels in response to insulin-induced
 hypoglycemia. Plays an important role in initiating and
 maintaining hyperglycemic conditions in diabetes.
 CC -1- FUNCTION: GLP-1 is a potent stimulator of glucose-dependent
 insulin release. Play important roles on gastric motility and the
 suppression of plasma glucagon levels. May be involved in the
 suppression of satiety and stimulation of glucose disposal in
 peripheral tissues, independent of the actions of insulin. Have
 growth-promoting activities on intestinal epithelium. May also
 regulate the hypothalamic pituitary axis (HPA) via effects on LH,
 TSH, CRH, oxytocin, and vasopressin secretion. Increases islet
 mass through stimulation of islet neogenesis and pancreatic beta
 cell proliferation. Inhibits beta cell apoptosis.
 CC -1- FUNCTION: GLP-2 stimulates intestinal growth and up-regulates
 villus height in the small intestine, concomitant with increased
 crypt cell proliferation and decreased enterocyte apoptosis. The
 gastrointestinal tract, from the stomach to the colon is the
 principal target for GLP-2 action. Plays a key role in nutrient
 homeostasis, enhancing nutrient assimilation through enhanced
 gastrointestinal function, as well as increasing nutrient
 disposal. Stimulates intestinal glucose transport and decreases
 mucosal permeability.
 CC -1- FUNCTION: Oxyntomodulin significantly reduces food intake.
 CC -1- FUNCTION: Glucagon may modulate gastric acid secretion and the
 gastro-pyloro-duodenal activity.
 CC -1- SUBCELLULAR LOCATION: Secreted.
 CC -1- TISSUE SPECIFICITY: Glucagon is secreted in the A cells of the
 islets of Langerhans. GLP-1, GLP-2, oxyntomodulin and glicentin
 are secreted from enteroendocrine cells throughout the
 gastrointestinal tract.
 CC -1- INDUCTION: Glucagon release is stimulated by hypoglycemia and
 inhibited by hyperglycemia, insulin, and somatostatin. GLP-1 and
 GLP-2 are induced in response to nutrient ingestion.
 CC -1- PTM: Proglucagon is posttranslationally processed in a tissue-
 specific manner in pancreatic A cells and intestinal L cells. In
 pancreatic A cells, the major bioactive hormone is glucagon
 cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1
 liberates GLP-1, GLP-2, glicentin and oxyntomodulin. GLP-1 is
 further N-terminally truncated by posttranslational processing in
 the intestinal L cells resulting in GLP-1(7-37) GLP-1(7-36)amide.
 CC The C-terminal amidation is neither important for the metabolism
 of GLP-1 nor for its effects on the endocrine pancreas.
 CC -1- SIMILARITY: Belongs to the glucagon family.
 CC -----
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 or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: K02813; AAA41235.1; JOINED.
 DR EMBL: K02809; AAA41235.1; JOINED.
 DR EMBL: K02810; AAA41235.1; JOINED.

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DR EMBL; K02811; AAA41235.1; JOINED.
DR EMBL; K02812; AAA41235.1; JOINED.
DR PIR; A22655; GCRT.
DR HSSP; P01275; 1DOR.
DR RGD; 2668; GCG.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; Hormone_2; 3.
DR PRINTS; PR00275; GLUCAGON.
DR PROSITE; PS00260; GLUCAGON; 4.
KW Amination; Cleavage on pair of basic residues;
KW Direct protein sequencing; Glucagon family; Hormone; Signal.
FT SIGNAL 1 20
FT PEPTIDE 21 50
FT PEPTIDE 21 50
FT PEPTIDE 53 89
FT PEPTIDE 53 89
FT PROPEP 84 89
FT PROPEP 92 128
FT PEPTIDE 98 128
FT PEPTIDE 98 127
FT PEPTIDE 131 145
FT PROPEP 146 178
FT PEPTIDE 52 53
FT SITE 83 84
FT SITE 97 92
FT SITE 97 92
FT SITE 130 131
FT SITE 145 146
FT MOD_RES 127 127
SQ SEQUENCE 180 AA; 20846 MW; 76931409D03C7978 CRC64;

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1; 1e-13;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 127

RESULT 13
QERYBI PRELIMINARY; PRT; 124 AA.
AC QERYBI;
DT 05-JUL-2004 (TREMBLrel. 27, Created)
DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TREMBLrel. 27, Last annotation update)
DE Proglucagon (Fragment).
OS Agkistrodon piscivorus (cottonmouth).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Lepidodonta; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC Viperidae; Crotalinae; Agkistrodon.
OX NCBI_TaxID=8715;
RN 11
RP SEQUENCE FROM N.A.
RC TISSUE=Intestine;
RA Busby E.R., Brown G.D., Mommgen T.P.;
RL Submitted (NOV-2003) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY485820; AAS57656.1; -
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; Hormone_2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
FT NON TER 1 1
SQ SEQUENCE 124 AA; 14151 MW; 80513A2D6DB5EC91 CRC64;
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92.3%. Score 143; DB 2; Length 124;

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Best Local Similarity 86.7%; Pred. No. 3.7e-12;
Matches 26; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 36 HADGTYTSDISSYLEGQAAKEFIAMLVKGR 65

RESULT 14
AAS57656 PRELIMINARY; PRT; 124 AA.
AC AAS57656;
DT 25-MAR-2004 (TREMBLrel. 27, Created)
DT 25-MAR-2004 (TREMBLrel. 27, Last sequence update)
DT 25-MAR-2004 (TREMBLrel. 27, Last annotation update)
DE Proglucagon (Fragment).
OS Agkistrodon piscivorus (cottonmouth).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Lepidodonta; Squamata; Scleroglossa; Serpentes; Colubroidea;
OC Viperidae; Crotalinae; Agkistrodon.
OX NCBI_TaxID=8715;
RN 11
RP SEQUENCE FROM N.A.
RC TISSUE=Intestine;
RA Busby E.R., Brown G.D., Mommgen T.P.;
RL "Molecular evolution of proglucagon in non-mammalian vertebrates.";
DR EMBL; AY485820; AAS57656.1; -
FT NON TER 1 1
SQ SEQUENCE 124 AA; 14151 MW; 80513A2D6DB5EC91 CRC64;

Query Match 92.3%; Score 143; DB 2; Length 124;
Best Local Similarity 86.7%; Pred. No. 3.7e-12;
Matches 26; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVKGR 30
DB 36 HADGTYTSDISSYLEGQAAKEFIAMLVKGR 65

RESULT 15
GLUC_CHICK STANDARD; PRT; 206 AA.
AC P01277; Q91410;
DT 21-JUL-1986 (Rel. 01, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Glucagon precursor [Contains: Glucagon-related polypeptide (GRP)];
DE Glucagon; Glucagon-like peptide 1 (GLP-1); Glucagon-like peptide 1(7-36) (GLP-1(7-36));
DE 37) (GLP-1(7-37)); Glucagon-like peptide 1(7-36) (GLP-1(7-36));
DE Glucagon-like peptide 2 (GLP-2)].
OS Gallus gallus (Chicken), and
OS Meleagris gallopavo (Common turkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
OC Gallus.
OX NCBI_TaxID=9031, 9103;
RN 11
RP SEQUENCE FROM N.A. (ISOFORM PANCREATIC).
RC SPECIES=Chicken; TISSUE=Pancreas;
RC MEDLINE=90249492; PubMed=2338135;
RA Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H., Okamoto H.;
RL "Nucleotide sequence determination of chicken glucagon precursor cDNA.
RT Chicken proglucagon does not contain glucagon-like peptide II.";
RL FEMS Lett. 264:117-120(1990).
RN 12
RP SEQUENCE FROM N.A. (ISOFORM INTESTINAL).
RC SPECIES=Chicken; TISSUE=Intestinal mucosa;
RC MEDLINE=95295739; PubMed=7776976;
RA Irwin D.M., Wong J.;
RL "Trout and chicken proglucagon: alternative splicing generates mRNA
transcripts encoding glucagon-like peptide 2.";
RL Mol. Endocrinol. 9:267-277(1995).
```

RN [3]
 RP SEQUENCE OF 55-83.
 RC SPECIES=Chicken; PubMed=1194290;
 RX MEDLINE=76069271; PubMed=1194290;
 RA Pollock H.G., Kimmel J.R.;
 RT "Chicken glucagon: isolation and amino acid sequence studies.";
 RL J. Biol. Chem. 250:9377-9380 (1975).
 RN [4]
 RP SEQUENCE OF 55-83.
 RC SPECIES=Chicken;
 RX PubMed=2828209;
 RA Huang J., Eng J., Yalow R.S.;
 RT "Chicken glucagon: sequence and potency in receptor assay.";
 RL Horm. Metab. Res. 19:542-544 (1987).
 RN [5]
 RP COMPOSITION, AND SEQUENCE OF 55-83.
 RC SPECIES=M.gallinavo;
 RX MEDLINE=73074118; PubMed=4645932;
 RA Markusen J., Frandsen E.K., Hedling L.G., Sundby F.;
 RT "Turkey glucagon: crystallization, amino acid composition and immunology";
 RL Horm. Metab. Res. 4:360-363 (1972).
 CG -1- FUNCTION: Glucagon plays a key role in glucose metabolism and homeostasis. Regulates blood glucose by increasing gluconeogenesis and decreasing glycolysis.
 CG -1- FUNCTION: GLP-1 is a potent stimulator of glucose-dependent insulin release.
 CG -1- FUNCTION: GLP-2 stimulates intestinal growth and up-regulates villus height in the small intestine, concomitant with increased crypt cell proliferation and decreased enterocyte apoptosis.
 CG -1- SUBCELLULAR LOCATION: Secreted.
 CG -1- ALTERNATIVE PRODUCTS: Secreted.
 CG Event=Alternative splicing; Named isoforms=2;
 CG Name=Intestinal;
 CG IsoId=PO1277-1; Sequence=Displayed;
 CG Name=Pancratic;
 CG IsoId=PO1277-2; Sequence=VSP 001753, VSP 001754;
 CG Note=Has been shown to exist only in chicken so far;
 CG -1- INDUCTION: Produced in the A cells of the islets of Langerhans in response to a drop in blood sugar concentration.
 CG -1- PTM: Proglucagon is posttranslationally processed in a tissue-specific manner in pancreatic A cells and intestinal L cells. In pancreatic A cells, the major bioactive hormone is glucagon cleaved by PCSK2/PC2. In the intestinal L cells PCSK1/PC1 liberates GLP-1 and GLP-2. GLP-1 is further N-terminally truncated by posttranslational processing in the intestinal L cells resulting in GLP-1(7-37) GLP-1(7-36)amide (by similarity).
 CG -1- MISCELLANEOUS: The composition of turkey glucagon appears to be identical with chicken.
 CG -1- SIMILARITY: Belongs to the glucagon family.
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 CG
 DR EMBL; Y07539; CAAG8827.1; -;
 DR EMBL; S78477; AAB34506.1; -;
 DR PIR; I51301; I51301.
 DR PIR; S03992; GCH.
 DR HESP; P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR RefSeq: P00123; Hormone 2; 3.
 DR PRINTS; PR00275; GLUCAGON.
 DR PROSITE; PS00260; GLUCAGON; 4.
 KM Alternative splicing; Amidation; Cleavage on pair of basic residues; Direct protein sequencing; Glucagon family; Hormone; Signal.
 FT SIGNAL 1 22
 FT PEPTIDE 23 52
 FT Glycine-related polypeptide (by similarity).

FT PEPTIDE 55 83
 FT PROPEP 86 109
 FT PEPTIDE 112 148
 FT PEPTIDE 118 148
 FT PEPTIDE 118 147
 FT PROPEP 151 163
 FT PROPEP 166 198
 FT PROPEP 199 206
 FT SITE 54 55
 FT SITE 85 86
 FT SITE 111 112
 FT SITE 117 118
 FT SITE 150 151
 FT SITE 165 166
 FT MOD_RBS 147 147
 FT VARSPIC 151 151
 FT VARSPIC 152 206
 FT SEQUENCE 206 AA; 23875 MW; AB259E1B02FC6A4 CRC64;
 SQ
 Query Match 92.3%; Score 143; DB 1; Length 206;
 Best Local Similarity 86.7%; Pred. No. 6,1e-12;
 Matches 26; Conservative 3; Mismatches 1; Indels 0; Gaps 0;
 Cy 1 HAEGFTSPVSYLEGOAKERIFALVNGR 30
 Db 118 HAEGTTSPTSTLEGOAKERIFALVNGR 147
 Glucagon.
 By similarity.
 Glucagon-like peptide 1 (By similarity).
 Glucagon-like peptide 1(7-37) (By similarity).
 Glucagon-like peptide 1(7-36) (By similarity).
 By similarity.
 Glucagon-like peptide 2 (By similarity).
 By similarity.
 Cleavage (by PCSK2) (By similarity).
 Cleavage (by PCSK1 and PCSK2) (By similarity).
 Cleavage (by PCSK1) (By similarity).
 Cleavage (by PCSK1) (By similarity).
 Cleavage (by PCSK1) (By similarity).
 Arginine amide (G-148 provides amide group) (By similarity).
 D -> E (in isoform Pancreatic).
 FTId=VSP 001753.
 Missing (in isoform Pancreatic).
 /FTId=VSP 001754.

Search completed: December 20, 2004, 08:58:05
 Job time: 191 secs